Anexa nr. 1 – Cerere de premiere*

Stimați membri ai panelului, vă rog să luați în considerare prezenta cerere de premiere:

1. Candidat

Nume Candidat: **Gabor**

Nume anterioare: **Timar**

Prenume: **Alida Iulia**

Doctor din anul: 2010

Pozitia ocupata: Profesor

Institutia: Universitatea Babeș-Bolyai din Cluj Napoca, Facultatea de Știința și Ingineria Mediului și Institutul de Cercetări Interdisciplinare în Bio-Nano-Științe.

Telefon mobil:

Adresa de email:

2. Ediția "Gala Cercetării Românești": II

3. Premiul și categoria pentru care aplică (individual sau echipă de cercetare):

Premiul: **"Grigore Cobălcescu" pentru științele pământului, mediu și schimbări climatice**

Categoria: **Echipe de Cercetare**

4. Lider de echipă, dacă este cazul: Prof. Dr. Alida Timar-Gabor (doctor din anul 2010)

5. Componența echipei de cercetare, dacă este cazul (numele membrilor echipei, poziția ocupată, anul ultimei diplome acordate):

Conferențiar Dr. Robert Csaba Begy, doctor din anul 2009

CSIII Dr. Daniela Constantin, doctor din anul 2015

Lector Dr. Anca Avram, doctor din anul 2021

CS III Dr. Aditi Dave, doctor din anul 2021

Doctorand Șerban Constantin Grecu

Masterand Codrin Savin

Technician Monica Dolha

Pentru usurința dumneavoastră aplicația contine îndeplinirea condițiilor formale și cantitative a liderului de echipa conform cerintelor din pachetul de informații: articole in Q1 si Q2 publicate ca prim autor, articole in Q1 publicate, proiecte AIS cumulat, proiecte, etc (pentru ultimii 5 ani) urmate de:

6. O descriere a celor mai importante realizări științifice din ultimii 5 ani (max. 4 pag., format A4, caractere Times New Roman, 12 puncte, spațiere între linii de 1,5 și margini de 2 cm)**. ***Descierea este urmata de lista publicațiilor grupului și a proiectelor implementate de grup în ultimii 5 ani.***

7. Curriculum Vitae narativ al liderului și membrilor echipei, conform indicatorilor cantitativi din Anexa nr. 2 la regulament și criteriilor de evaluare calitativă prevăzute în Anexa nr. 3 la regulament. , ***urmat de lista publicațiilor și diploma de doctor.***

8. Lista publicațiilor candidatului "individual" sau a fiecărui membru al echipei de cercetare, în cazul candidatului "echipă de cercetare", cu evidențierea publicațiilor relevante ale candidatului în ultimii 5 ani și a publicațiilor comune ale membrilor unei echipe de cercetare în cazul candidatului "echipă de cercetare". ***– lista publicațiilor fiecarui membru se regaseste la finalul CV-ului narativ al acestuia.*** Se menționează și un link al paginii web unde se regăsesc publicațiile candidatului. ***-linkul este indicat in desrierea realizarilor grupului.***

9. Lista proiectelor de cercetare câștigate de candidat și valoarea acestora***.-se gaseste dupa descrierea rezalizarilor grupului.***

Va mulțumim pentru timpul acordat,

Cluj, Napoca,
29 ianuarie 2024,
Alida Timar-Gabor și echipa

* Se redactează în limba engleză. Prin excepție, redactarea cererii de premiere se face în limba română pentru cererile din domenii cu specific românesc: limba și literatura română și dreptul românesc.

** Rezultatele activității de cercetare sunt evaluate conform Anexei nr. 3 la Regulamentul de organizare și funcționare a programului Gala Cercetării Românești.

Professor Dr. Alida Timar-Gabor

Fulfillment of selection criteria (quantitative indicators 2019-present)

Eligibility criteria according to article 13 of information package.

Articles published in the last 5 years as first and/or corresponding author in Q1/Q2 journals, according to AIS classification https://uefiscdi.gov.ro/scientometrie-baze-de-date

1. Timar-Gabor, A., Kabacińska, Z., Constantin, D., Dave, A., Buylert, J.P., 2023. Reconstructing dust provenance from quartz optically stimulated luminescence (OSL) and electron spin resonance (ESR) signals: Preliminary results on loess from around the world. ***Radiation Physics and Chemistry,*** 111138. **-first and corresponding author** https://www.sciencedirect.com/science/article/pii/S0969806X23003833
2. Avram, A., Kabacińska, Z., Micallef, A., **Timar-Gabor, A.,** 2022. Testing the potential of using fine quartz for dating loess in South Island, New Zealand. ***Radiation Measurements,*** 106788. - **corresponding author** https://www.sciencedirect.com/science/article/pii/S1350448722000816?v=s5
3. Benzid, K., **Timar-Gabor, A.,** 2021. On the dose dependence prior and after stimulation with visible light of E' and Al-hole centres in sedimentary quartz: correlation and mechanisms, ***Radiation Measurements,*** 141, 106522. - **corresponding author** https://www.sciencedirect.com/science/article/pii/S135044872100007X
4. Tecsa, V., Mason, J.A., Johnson, W.C., Miao, X., Radu, S., Magdas, D.A., Veres, D., Markovic, S.B., **Timar-Gabor, A., 2020.** Latest Pleistocene to Holocene loess in the central Great Plains: Optically stimulated luminescence dating and multi-proxy analysis of the Enders loess section (Nebraska, USA). ***Quaternary Science Reviews,*** 229, 106130. **- corresponding author** https://www.sciencedirect.com/science/article/pii/S0277379119305967?via%3Dihub
5. Benzid, K., **Timar-Gabor, A.,** 2020. Phenomenological model of aluminium-hole ($[AlO_4/h^+]^0$) defect formation in sedimentary quartz upon room temperature irradiation: electron spin resonance (ESR) study. ***Radiation Measurements***, 130, 106187. **corresponding author** https://www.sciencedirect.com/science/article/pii/S1350448719304731?via%3Dihub
6. **Timar-Gabor, A.,** Chruścińska, A., Benzid, K., Fitzsimmons, K., Begy, R., Bailey, M., 2020. Bleaching studies on Al-hole ($AlO_4/h]^0$) electron spin resonance (ESR) signal in sedimentary quartz, **Radiation Measurements,** 130, 106221. **-first and corresponding author** https://www.sciencedirect.com/science/article/pii/S1350448719305074?via%3Dihub

Selection criteria according to Annex 2 of information package:

Articles published in the last 5 years in Q1 journals, according to AIS classification

https://uefiscdi.gov.ro/scientometrie-baze-de-date

1. Dave, A.K., **Timar-Gabor, A.,** Kabacińska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K.E., 2022. A novel proxy for tracking the provenance of dust based on paired E'-peroxy paramagnetic defect centres in fine-grained quartz. ***Geophysical Research Letters,*** GL095007.

https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2021GL095007?fbclid=IwAR2FdaQKRvpHI7w53mQQrwPYpZwXGgxN1YN3SUXouwHY06UTRt5310aXlMY

2. Begy, R.C., Savin, C., **Timar-Gabor, A.,** 2022. Correction of the effects of carbon dioxide and hydrogen sulfide on electrostatic cell monitors measurements of radon in water. ***Journal of Environmental Chemical Engineering,*** 10, 107040.

https://www.sciencedirect.com/science/article/abs/pii/S2213343721020170

3. Biernacka, M., **Timar-Gabor, A.,** Kabacińska, Z., Palcewski, P., Chruścińska, A., 2022. Trap Parameters for the Fast OSL Signal Component Obtained through Analytical Separation for Various Quartz Samples. ***Materials,*** 15, 8682.

https://www.mdpi.com/1996-1944/15/23/8682

4. Constantin, D., Mason, J., Veres, D., Hambach, U., Panaiotu, C., Zeeden, C., Zhou, L., Marković, S., Gerasimenko, N., Avram, A., Tecsa, V., Groza-Sacaciu, S.M., del Valle Villalonga, L., Begy, R.C., **Timar-Gabor, A., 2021.** OSL-dating of the Pleistocene-Holocene climatic transition in loess from China, Europe and North America, and evidence for accretionary pedogenesis. ***Earth-Science Reviews,*** 221, 103769.

https://www.sciencedirect.com/science/article/pii/S0012825221002701

5. Mirea, I C , Robu, M., Petculescu, A., Kenesz, M., Faur, L., Arghir, R., Tecsa, V., **Timar-Gabor, A.,** Roban, R-D., Panaiotu, C.G., Sharifi, A., Pourmand, A., Codrea, V., Constantin, S., 2021. Last deglaciation flooding events in the Southern Carpathians as revealed by the study of cave deposits from Muierilor Cave, Romania. ***Palaeogeography, Palaeoclimatology, Palaeoecology,*** 562, 110084

https://www.sciencedirect.com/science/article/pii/S0031018220305320

6. Micallef, A., Marchis, R., Saadatkhah, N., Clavera-Gispert, R., Pondthai, P., Everett, M. E., Avram, A., **Timar-Gabor, A.,** Cohen, D., Preca Trapani, R., and Weymer, B. A., 2021. Groundwater erosion of coastal gullies along the Canterbury coast (New Zealand): a rapid and episodic process controlled by rainfall intensity and substrate variability. ***Earth Surface Dynamics,*** 9, 1-18.

https://doi.org/10.5194/esurf-9-1-2021

7. Tecsa, V., Mason, J.A., Johnson, W.C., Miao, X., Radu, S., Magdas, D.A., Veres, D., Markovic, S.B., **Timar-Gabor, A., 2020.** Latest Pleistocene to Holocene loess in the central Great Plains: Optically stimulated luminescence dating and multi-proxy analysis of the enders loess section (Nebraska, USA). ***Quaternary Science Reviews,*** 229, 106130.
https://www.sciencedirect.com/science/article/pii/S0277379119305967?via%3Dihub

8. Gabor, M.S., Nasui, M., **Timar-Gabor, A., 2019**. Perpendicular magnetic anisotropy in Pt/Co-based full Heusler alloy/MgO thin-film structures. ***Physical Review B*** 100(14),144438
https://journals.aps.org/prb/abstract/10.1103/PhysRevB.100.144438

International projects as PI:

Contracted and implemented during the evaluated period

EUROPEAN RESEARCH COUNCIL CONSOLIDATOR GRANT 101043356, HORIZON EUROPE, „PROGRESS- Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods", 2023-2027 (value 2 657 000 Euro).

Team members: Daniela Constatin, Robert Begy, Mihai Ducea, Aditi Dave, Adriana Vulpoi-Lazar, Serban Grecu.

https://enviro.ubbcluj.ro/progress-erc-cog-101043356/

Implemented during the evaluated period

EUROPEAN RESEARCH COUNCIL STARTING GRANT 678106, HORIZON 2020, „INTERTRAP- Integrated dating approach for terrestrial records of past climate using trapped charge methods", 2016-2021, (value 1 500 000 Euro).

Team members: Daniela Constatin, Robert Begy, Daniel Veres, Khalif Benzid, Zuzanna Amelia Kabacińska, Madalina Stefana Groza, Valentina Anechitei-Deacu.

EEA-RO-NO2018-0126, "Cave deposits as archives of climate and environmental changes. A Center of Excellence in speleological research", main coordinator Silviu Constantin, Institutul de Speologie "Emil Racovita" UBB partner responsible Alida Timar-Gabor (UBB partner value 200 000 Euro).
https://enviro.ubbcluj.ro/intertrap-erc-stg-678106/

Partner team members: Anca Avram, Daniela Constatin, Robert Begy, Szabolcs Kelemen

National projects as PI: PN-III-P3-3.6-H2020-2016-0016, nr. contract 7/2016, 2016-2021, (375 000 Euro). Team members: Anca Avram, Daniela Constatin, Robert Begy, Szabolcs Kelemen, Ramona Bălc, Viorica Tecsa.

http://icibns.institute.ubbcluj.ro/premierea-h2020-integrated-absolute-dating-approach-for-terrestrial-records-of-past-climate-using-trapped-charge-methods-intertrap/

Invited professor

Ghent University (top 100 ARWU), June 2023.

RWTH Aachen (ARWU 200-300), November 2019.

Editorial Activity

Global And Planetary Change-member in the editorial board.

https://www.sciencedirect.com/journal/global-and-planetary-change/about/editorial-board

Invited editor - Proceedings of International Conference on Materials - Properties, Measurements, and Applications (ICMPMA 2022), IOP publishing. Preface - IOPscience

Total article influence score (2019-present):

Nr.	Authors, Title, Journal, Publication Date	AIS	ni	AIS/ ni
1	Del Valle Villalonga, L., Timar-Gabor, A., Fornós, J.J, 2023. Chronology of Pleistocene Sedimentary Cycles in the Western Mediterranean. *Quaternary Science Reviews,* accepted.	1,350	3	0,450
2	Lawless, J.L., Timar-Gabor, A., 2023. An analytical form to fit both fine and coarse grained quartz OSL SAR dose response curves. *Radiation Measurements,* in press. https://www.sciencedirect.com/science/article/pii/S1350448723001464	0,390	2	0,195
3	Kelemen, S., Savin, C., Timar-Gabor, A., Begy, R-C, 2023. A comparative study on digestion methods for 210Po determinations by alpha spectrometry on peat bog samples. *Journal of Radioanalytical and Nuclear Chemistry.* https://doi.org/10.1007/s10967-023-09157-z	0,233	4	0,058
4	Timar-Gabor, A., Kabacińska, Z., Constantin, D., Dave, A., Buylert, J.P., 2023. Reconstructing dust provenance from quartz optically stimulated luminescence (OSL) and electron spin resonance (ESR) signals: Preliminary results on loess from around the world. *Radiation Physics and Chemistry,* 111138. https://www.sciencedirect.com/science/article/pii/S0969806X23003833	0,386	5	0,077
5	Biernacka, M., Timar-Gabor, A., Kabacińska, Z., Palcewski, P., Chruścińska, A., 2022. Trap Parameters for the Fast OSL Signal Component Obtained through Analytical Separation for Various Quartz Samples. *Materials*, *15*(23), 8682; https://www.mdpi.com/1996-1944/15/23/8682	0,510	5	0,102
6	Dave, A.K., Timar-Gabor, A., Kabacińska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K.E., 2022. A novel proxy for tracking the provenance of dust based on paired E'-peroxy paramagnetic defect centres in fine-grained quartz. *Geophysical Research Letters,* GL095007 https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2021GL095007?fbclid=IwAR2FdaQKRvpHl7w53mQQrwPYpZwXGgxN1YN3SUXouwHY06UTRt5310aXlMY	1,921	7	0,274
7	Avram, A., Kabacińska, Z., Micallef, A., Timar-Gabor, A., 2022. Testing the potential of using fine quartz for dating loess in South Island, New Zealand. *Radiation Measurements,* 106788 https://www.sciencedirect.com/science/article/pii/S1350448722000816?v=s5	0,390	4	0,098

8	Dave, A.K., Timar-Gabor, A., Scardia, G., Safaraliev, N., Fitzsimmons, K.E., 2022. Variation in luminescence characteristics and paramagnetic defect centres in fine-grained quartz from a loess-palaeosol sequence in Tajikistan: Implications for provenance studies in aeolian environments. *Frontiers in Earth Sciences.* https://www.frontiersin.org/articles/10.3389/feart.2022.835281/full	0,953	5	0,191
9	Kabacińska, Timar-Gabor, A., 2022. Dating sediments by EPR using Al-h centre: a comparison between the properties of fine (4-11μm) and coarse (> 60 μm) quartz grains. *Molecules, 27*(9), 2683. https://www.mdpi.com/1420-3049/27/9/2683	0,695	2	0,348
10	Kabacińska, Z., Buylaert, J.P., Yi, S., Timar-Gabor, A., 2022. Revisiting natural and laboratory electron spin resonance (ESR) dose response curves of quartz from Chinese loess. *Quaternary Geochronology*, 70, 101306. https://www.sciencedirect.com/science/article/pii/S1871101422000541	1,002	4	0,251
11	Peric, Z., Marković, S., Avram, A., Timar-Gabor, A., Zeeden, C., Nett, J., Fischer, P., Fitzsimmons, K., Gavrilor, M.B., 2022. Initial quartz OSL and dust mass accumulation rate investigation of the Kisiljevo loess sequence in north-eastern Serbia. *Quaternary International*, 620, 13-23. https://www.sciencedirect.com/science/article/abs/pii/S1040618220306650?via%3Dihub	0,693	9	0,077
12	Begy, R.C., Savin, C., Timar-Gabor, A., 2022. Correction of the effects of carbon dioxide and hydrogen sulfide on electrostatic cell monitors measurements of radon in water. *Journal of Environmental Chemical Engineering*, 10, 107040. https://www.sciencedirect.com/science/article/abs/pii/S2213343721020170	0,879	3	0,293
13	del Valle Villalonga, L., Timar-Gabor A., Pomar, F., Pons Buades, G.X., Fornos, J.J., 2022. Millennial-scale climate variability recorded in Late Pleistocene coastal deposits of Formentera Island (Balearic Archipelago, Western Mediterranean). *Quaternary International*, 617,112-128. https://www.sciencedirect.com/science/article/pii/S1040618221003797	0,693	5	0,139
14	Avram, A., Constantin, D., Hao, Q., Timar-Gabor, A., 2022. Optically stimulated luminescence dating of loess in South-Eastern China using quartz and polymineral fine grains. *Quaternary Geochronology,* 67, 101226. https://www.sciencedirect.com/science/article/pii/S1871101421000765	1,002	4	0,251
15	Pawlak, N., Timar-Gabor, A., Chruścińska, A., 2021. Residual hole concentration in recombination centers after bleaching. *Geochronometria,* 48 (1), 415-427.	0,469	3	0,156
16	del Valle Villalonga, L., Pomar, F., Fornós, J., Gelabert, B., Timar-Gabor, A., 2021. Processes and evolution of the Pleistocene coastal sedimentary succession of Es Codolar (Southern Eivissa, Balearic Islands, Western Mediterranean): insights from soft sediment deformation structures. *Environmental Earth Sciences*, 80:754. https://link.springer.com/article/10.1007/s12665-021-09966-z	0,493	5	0,099
17	Constantin, D., Mason, J., Veres, D., Hambach, U., Panaiotu, C., Zeeden, C., Zhou, L., Marković, S., Gerasimenko, N., Avram, A., Tecsa, V., Groza-Sacaciu, S.M., del Valle Villalonga, L., Begy, R.C., Timar-Gabor, A., 2021. OSL-dating of the Pleistocene-Holocene climatic transition in loess from China, Europe and North America, and evidence for accretionary pedogenesis. *Earth-Science Reviews*, 221, 103769. https://www.sciencedirect.com/science/article/pii/S0012825221002701	3,954	15	0,264
18	Faur, L., Drăguşin, V., Dimofte, D., Forray, F.L., Ilie M., Marin, C., Mănăilescu, C., Mirea, I.C., Panaiotu, C., Soare, B., Timar-Gabor, A., Tîrlă, L., 2021. Multi-proxy study of a Holocene soil profile from Romania and 2 its importance for speleothem based paleoenvironmental re- 3 constructions. Minerals, *11*(8), 873. https://www.mdpi.com/2075-163X/11/8/873	0,513	12	0,043

19	Brezenu, D., Avram, A., Micaleff, A, Cinta Panzaru, S., Timar-Gabor A., 2021. Investigations on the luminescence properties of quartz and feldspars extracted from loess in the Canterbury Plains, New Zealand South Island. *Geochronometria*, 48, 46-60. https://sciendo.com/article/10.2478/geochr-2021-0005	0,469	5	0,094
20	Benzid, K., Timar-Gabor, A., 2021. On the dose dependence prior and after stimulation with visible light of E' and Al-hole centres in sedimentary quartz: correlation and mechanisms, *Radiation Measurements*, 141, 106522. https://www.sciencedirect.com/science/article/pii/S135044872100007X	0,390	2	0,195
21	Mirea, I C , Robu, M., Petculescu, A., Kenesz, M., Faur, L., Arghir, R., Tecsa, V., Timar-Gabor, A., Roban, R-D., Panaiotu, C.G., Sharifi, A., Pourmand, A., Codrea, V., Constantin, S., 2021. Last deglaciation flooding events in the Southern Carpathians as revealed by the study of cave deposits from Muierilor Cave, Romania. *Palaeogeography, Palaeoclimatology, Palaeoecology,* 562, 110084. https://www.sciencedirect.com/science/article/pii/S0031018220305320	0,918	14	0,066
22	Micallef, A., Marchis, R., Saadatkhah, N., Clavera-Gispert, R., Pondthai, P., Everett, M. E., Avram, A., Timar-Gabor, A., Cohen, D., Preca Trapani, R., and Weymer, B. A., 2021. Groundwater erosion of coastal gullies along the Canterbury coast (New Zealand): a rapid and episodic process controlled by rainfall intensity and substrate variability. *Earth Surface Dynamics,* 9, 1-18. https://doi.org/10.5194/esurf-9-1-2021	1,380	11	0,125
23	Händel, M., Simon, U., Maier, A., Brandl, M., Groza-Săcaciu, S.M., Timar-Gabor, A., Einwögerer, T., 2021. Kammern-Grubgraben revisited -First results from renewed investigations at a well-known LGM site in East Austria. *Quaternary International*, 587-588, 137-157. https://www.sciencedirect.com/science/article/abs/pii/S1040618220303244	0,693	7	0,099
24	Benzid, K., Timar-Gabor, A., 2020. The compensation effect (Meyer-Neldel rule) on $[AlO_4/h^+]0$ and $[TiO_4/M^+]0$ paramagnetic centres in irradiated sedimentary quartz. *AIP Advances*, 10, 075114. https://aip.scitation.org/doi/pdf/10.1063/5.0005161	0,322	2	0,161
25	del Valle, L., Fornós, J.J., Pomar, F., Pons, G.X., Timar-Gabor, A., 2020. Aeolian-Alluvial interactions at Formentera (Balearic islands, western Mediterranean): The late pleistocence evolution of a costal system. *Quaternary International*, 566-567, 271-283. https://www.sciencedirect.com/science/article/abs/pii/S1040618220302433	0,693	5	0,139
26	Avram, A., Constantin, D., Veres, D., Kelemen, S., Obreht, I., Hambach, U., Marković, S.B., Timar-Gabor, A., 2020. Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia. *Boreas*, 49 (3), 615-633. https://onlinelibrary.wiley.com/doi/full/10.1111/bor.12442	0,744	8	0,093
27	Tecsa, V., Gerasimenko, N., Veres, D., Hambach, U., Lehmkuhl, F., Schulte, P., Timar-Gabor, A., 2020. Revisiting the chronostratigraphy of Late Pleistocene loess-paleosol sequences in southwestern Ukraine: OSL dating of Kurortne section. *Quaternary International*, 542, 65-79. https://www.sciencedirect.com/science/article/pii/S1040618220300860?via%3Dihub.	0,693	7	0,099
28	del valle Villalonga, L., Pomar, F., Fornos, J., Gomez-Pujol, L., Timar-Gabor, A., 2020. Lower to middle pleistocene coastal dune fields formation in the western mediterranean (Western Eivissa, Balearic archipelago): Chronology and landscape evolution. *Aeolian research*, 45, 100595. https://www.sciencedirect.com/science/article/abs/pii/S187596372030046X?via%3Dihub	0,817	5	0,163
29	Tecsa, V., Mason, J.A., Johnson, W.C., Miao, X., Radu, S., Magdas, D.A., Veres, D., Markovic, S.B., Timar-Gabor, A., 2020. Latest Pleistocene to Holocene loess in the central Great Plains: Optically stimulated luminescence	1,350	9	0,150

	dating and multi-proxy analysis of the enders loess section (Nebraska, USA), *Quaternary Science Reviews,* 229, 106130. https://www.sciencedirect.com/science/article/pii/S0277379119305967?via%3Dihub			
30	Benzid, K., Timar-Gabor, A., 2020. Phenomenological model of aluminium-hole ($[AlO_4/h^+]^0$) defect formation in sedimentary quartz upon room temperature irradiation: electron spin resonance (ESR) study, *Radiation Measurements*, 130,106187. https://www.sciencedirect.com/science/article/pii/S1350448719304731?via%3Dihub	0,390	2	0,195
31	Timar-Gabor, A., Chruścińska, A., Benzid, K., Fitzsimmons, K., Begy, R., Bailey, M., 2020. Bleaching studies on Al-hole ($[AlO_4/h]^0$) electron spin resonance (ESR) signal in sedimentary quartz, *Radiation Measurements*, 130, 106221. https://www.sciencedirect.com/science/article/pii/S1350448719305074?via%3Dihub	0,390	6	0,065
32	del valle Villalonga, L., Timar-Gabor, A., Fornos, J., 2019. Geomorphological Processes and Environmental Interpretation at Espalmador islet (Western Mediterranean). *Journal of Marine Science and Engineering,* 7, 5, 144. https://doi.org/10.3390/jmse7050144	0,438	3	0,146
33	Gabor, M.S., Nasui, M., Timar-Gabor, A., 2019. Perpendicular magnetic anisotropy in Pt/Co-based full Heusler alloy/MgO thin-film structures. *Physical Review B* 100(14),144438. https://journals.aps.org/prb/abstract/10.1103/PhysRevB.100.144438	0,970	3	0,323
34	Constantin, D., Veres, D., Anechitei-Deacu, V., Groza, S.M., Begy, R., Kelemen, S., Buylaert, J.-P., Panaiotu, C., Hambach, U., Marković, S.B., Gerasimenko, N., Timar-Gabor, A., 2019. Luminescence age constraints on the Pleistocene-Holocene transition recorded in loess sequences across SE Europe–*Quaternary Geochronology*, 49, 71-77. **(FI=3.440)**	1,002	12	0,084
35	Groza, S.M., Hambach, U., Veres, D., Vulpoi, A., Händel, M., Einwögerer, T., Simon, U., Neugebauer-Maresch, Timar-Gabor, A., 2019. Optically stimulated luminescence ages for the Upper Palaeolithic site Krems-Wachtberg, Austria–*Quaternary Geochronology*, 49, 242-248. https://www.sciencedirect.com/science/article/pii/S1871101417302364	1,002	9	0,111
Total				5,6

Professor Alida Timar-Gabor and team members of
Environmental radioactivity and nuclear dating center, Babeș-Bolyai University (BBU)
Dr. Robert Begy, Dr. Daniela Constantin, Dr. Anca Avram, Dr. Aditi Dave,
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Unveiling the Past, Safeguarding the Future: Exploring Environmental Radioactivity for Geochronology Advancements and Understanding Earth Science Processes

The study of environmental radioactivity holds a dual significance, contributing not only to the health and well-being of our environment but also playing a pivotal role in the development of nuclear dating methods. These two facets are deeply intertwined, offering valuable insights into the past and present. On one hand, understanding and monitoring environmental radioactivity are essential for safeguarding the health of humans as well as the health of our environment (Begy et al., 2023a, Dicu et al., 2021). These studies enable us to detect and assess the presence of radioactive pollutants, both natural and anthropogenic, in various environmental matrices such as soil, sediment, water, and air (Savin et al., 2023, Begy et al., 2023a, Ganea et al., 2023, Begy et al., 2022a,b, Tunyagi et al., 2020). EURATOM directive no. 59 /2013 on safety standards regarding exposure to ionizing radiation introduced for the first time legal requirements on protection against exposure to natural sources of radiation and mandated all EU member states to establish national action plans in this regard.
On the other hand, the field of environmental radioactivity, including studies regarding natural and artificial radioactivity by gamma, alpha, and beta spectrometry all hosted by our research center, has been instrumental in the development of nuclear dating methods. The natural decay of radioactive isotopes in the environment, such as Pb-210 dating, provides us with a natural clock that allows us to determine the age of materials and sediments. Pb-210 dating is particularly valuable for dating recent sediments, spanning the last 200 years. We utilize the Pb-210 dating method to establish precise chronologies of sediment deposition in natural sedimentary archives (Begy et al., 2024, Begy et al., 2021, Szabo et al., 2020, Haliuc et al., 2020). These chronologies serve various purposes, including studying effects of land use changes on soil erosion processes, historical assessments of water quality, and monitoring atmospheric pollution involving heavy metals, organic pollutants, and radioactive emissions. Recent studies have also proven the potential of using the method for dating peatlands with great implications for the pivotal role these have in CO_2 sequestration, underscoring the urgency of preserving these ecosystems (Begy et al., 2023b, Longman et al., 2021). We also contribute to

developing the methodology of the analytical procedures involved in these techniques (see e.g. Kelemen et al., 2023, Begy et al., 2022a).

For going beyond the recent past, trapped charged techniques such as luminescence and electron spin resonance (ESR) dating are methods that rely on the effect natural radioactivity has over the point defects in mineral grains in time. These methods have significantly contributed in the last decade to paleoclimate research addressing the timeframe of the Quaternary by providing accurate absolute ages, aiding in the reconstruction of past environmental conditions (del Valle et al., 2024, Peric et al., 2022, del Valle et al., 2022, Avram et al., 2022, del Valle et al., 2021, Faur et al., 2021, Mirea et al., 2021, del Valle et al., 2020a,b, del Valle et al., 2019). The study of paleoclimates is the key to unlocking the past, enabling us to better understand the present, and providing essential insights for predicting and mitigating the challenges of future climate change.

At present the Babeș-Bolyai University (BBU) luminescence dating laboratory is the sole fully operational facility of its kind in Romania. During recent years we expanded our capabilities by introducing electron spin resonance dating at BBU (Timar-Gabor et al., 2020, Benzid and Timar-Gabor, 2020, Gabor et al., 2019). ***The combined use of these trapped charge dating methods is a rare practice, limited to just a few laboratories worldwide.*** As such, we conducted luminescence and electron spin resonance dating studies in various sedimentary environments, with implications for various scientific disciplines, including geology (Constantin et al., 2019, Tecsa et al., 2020), archaeology (Handel et al., 2020, Groza et al., 2019) and environmental science (del Valle et al., 2019). Apart from the applicative studies our research goal is to enhance the precision, accuracy, and age range of these dating methods, delving into the behavior of point defects in minerals under natural factors (see e.g. Timar-Gabor et al., 2020, Benzid and Timar-Gabor, 2020).

The members of the Environmental radioactivity and nuclear dating center, Babeș-Bolyai University (BBU) recently successfully finalized ***INTERTRAP*** project, funded under Horizon 2020 (2016-2021). INTERTRAP was a innovative initiative in the field of Physical Science and Engineering. It was supported by the European Research Council. Grants funded by the European Research Council ***(ERC) are synonymous with excellence and represent the pinnacle of prestigious research funding in Europe***, fostering groundbreaking discoveries and innovation in frontier science. This project was the first of its kind in the field of Earh Sciences in Romania, as well as the first in its host institution, focusing on integrated dating methods for studying past climate using trapped charge techniques. The project was instrumental in setting up a cutting-edge luminescence and electron spin resonance (ESR) dating laboratory at BBU, with an investment exceeding 1 million Euros in research equipment.

The project had a global reach, spanning four continents (North America- see for example Tecsa et al., 2020, Asia-see for example Avram et al., 2022, Europe-see for example Sacaciu et al., 2020, and Oceania-see Avram et al., 2022, Brezeanu et al., 2021, Micallef et al., 2021) and addressing both

geological (see e.g. Constantin et al., 2021) and methodological challenges (Lawless et al., 2023, Benzid and Timar-Gabor 2020, Kabacinska and Timar-Gabor 2022, Biernaka et al., 2022) in dating sediments and paleoclimate studies. One aspect of INTERTRAP's paleoclimate approach involved deriving high-resolution luminescence ages and paleoclimate proxy records in loess deposits, particularly around the Pleistocene/Holocene climate transition. These records were compared across continents and with global key records to investigate the synchronicity of climate change. Notably, the project revealed that magnetic susceptibility, often used to correlate loess palaeosol sequences, indicated a gradual shift from the Last Glacial to the Holocene. This shift began around Termination 1 (around 17,000 years ago in the North Atlantic) but preceded the Pleistocene/Holocene transition observed in ice core records, dated 11.7 thousand years ago. This underscored the importance of considering absolute age control when correlating climate events in different archives (Constantin et al., 2021). The methodological aspect of INTERTRAP aimed at enhancing dating methods for sediments older than approximately 40,000 years by incorporating ESR alongside luminescence techniques. Our work introduced ESR dating of sediments as a new research avenue in Romania. Single grain analysis revealed that brighter grains yielded more accurate results, suggesting that using coarse grains and selecting the brightest ones could lead to better chronologies. Our fundamental research in luminescence and electron spin resonance, using different grain sizes and minerals has *unequivocally defined the accurate temporal limits of different methodologies used in trapped charge dating* (Kabacinska and Timar-Gabor 2022, Kabacinska et al., 2022, Avram et al., 2020).

In 2022, the core of the INTERTRAP team achieved a significant milestone by securing a second European Research Council (ERC) grant. ***Obtaining two consecutive grants is a rare achievement at European level,*** as the ERC encourages diverse and innovative research rather than continuous funding. ***PROGRESS,*** as part of Horizon Europe, will run from 2023 to 2027. The project, titled "Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods," currently develops methods for determining the origin of quartz samples by studying atomic-level changes in quartz over geological time. The primary goal of PROGRESS is to advance our understanding of quartz-based provenance methods by conducting complex investigations on samples of various types with ages spanning over an extended geological time. Most of the provenance studies using trapped charged methods target minerals grains deposited in sinks and focus only on observing the characteristics of signals displayed by different samples, followed by clustering. As such, there is a gap in the knowledge regarding quartz luminescence signals in rocks. Without directly examining the signals of the potential rock sources, these studies are not proving a cause-effect relationship. PROGRESS team members currently tackle this gap by investigating the luminescence sensitivity in rocks with varying crystallization ages that go beyond 1 Ga, selected from locations throughout the world, from our country to North America,

Africa, and Australia. These investigations will contribute to the *development of a quartz fingerprint method that can have a significant impact on quantitative provenance studies*. In other words, PROGRESS will develop a quartz based forensic fingerprinting method for geological applications. Our preliminary results show that indeed *luminescence and electron spin resonance methods have the potential for such methods to be developed* (Timar-Gabor et al., 2023, Dave et al., 2022a,b). This project will significantly expand our research capabilities by incorporating cutting-edge equipment valued at over 1.5 million Euros, most of it already purchased and installed. It will involve combining luminescence and paramagnetic electron resonance dating techniques with spectrally resolved cathodoluminescence, based on scanning electron microscopy as well as other spectroscopic methods such as Fourier transformed infrared spectroscopy. Although these methods are known for other applications, there are only a handful of laboratories worldwide that integrate these experimental approaches for applications in earth sciences. By incorporating microscopic and cathodoluminescence techniques with trapped charge dating techniques, the BBU laboratory will gain a competitive advantage in the trapped charge dating community worldwide.

Our research group boasts a global network of collaborations. However, as seen from our publication list below, the place of origin of the vast majority of our publications remains our group, emphasizing our leading role in the research we carry out. Our members are present in the scientific committees of the main conferences in our field. Our papers, cited over 2000 times in all major databases during the last five years have been ***listed many times as most cited/downloaded in Radiation Measurement, Quaternary Geochronology and Boreas Journals*** in the last years and **have attracted citations in most prestigious journals such as Nature** Reviews, Nature Communications, Reviews of Geophysics, PNAS, etc (see annex). Both senior, early career scientists and students of our team have received ***international accolades*** (see annex). The members of our center have been honored not only to attend prestigious international events but also to host visits from numerous international scientists and are active in various actions that aim transferring our know how to society as well as actions that aim at increasing the participation and success rate of Romanian researchers in ERC funding schemes.

To conclude the Environmental and Nuclear Dating Centre stands as exceptional in Romania, for its excellent capabilities in the study of natural radioactivity, precision dating of the last 200 years using Pb-210, unique luminescence and electron spin resonance dating facilities for the young Quaternary period, and its pivotal role in advancing fundamental research, generously supported by the European Research Council.

Last but not least, with over a dozen PhD students graduating in the last decade, the Environmental and Nuclear Dating Centre is a nurturing ground where aspiring young students are cultivated and trained into the scientists of tomorrow.

ANNEX

Articles published in the last 5 years in indexed journals by current team members and alumni (undergrad students, PhD students and post-docs) of the Environmental Radioactivity and Nuclear Dating Center and marked in bold.

Articles with at least two members from the center co-authoring as well as main (first and/or corresponding) authors from our center are marked by *

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46. ***del valle Villalonga, L., Timar-Gabor, A.,** Fornos, J., **2019**. Geomorphological Processes and Environmental Interpretation at Espalmador islet (Western Mediterranean). ***Journal of Marine Science and Engineering,*** 7, 5, 144. https://doi.org/10.3390/jmse7050144
47. Gabor, M.S., Nasui, M., **Timar-Gabor, A., 2019**. Perpendicular magnetic anisotropy in Pt/Co-based full Heusler alloy/MgO thin-film structures. ***Physical Review B*** 100(14),144438. https://journals.aps.org/prb/abstract/10.1103/PhysRevB.100.144438
48. ***Groza, S.M.,** Hambach, U., Veres, D., Vulpoi, A., Händel, M., Einwögerer, T., Simon, U., Neugebauer-Maresch, **Timar-Gabor, A., 2019**. Optically stimulated luminescence ages for the Upper Palaeolithic site Krems-Wachtberg, Austria–***Quaternary Geochronology***, 49, 242-248. https://www.sciencedirect.com/science/article/pii/S1871101417302364
49. ***Constantin, D.,** Veres, D., **Anechitei-Deacu, V., Groza, S.M., Begy, R., Kelemen, S.,** Buylaert, J.-P., Panaiotu, C., Hambach, U., Marković, S.B., Gerasimenko, N., **Timar-Gabor, A., 2019**. Luminescence age constraints on the Pleistocene-Holocene transition recorded in loess sequences across SE Europe–***Quaternary Geochronology***, 49, 71-77. https://www.sciencedirect.com/science/article/pii/S1871101417302388

Projects implemented in the last 5 years by members of the Environmental Radioactivity and Nuclear Dating Center

1. European Research Council Grant 101043356, Horizon Europe, "Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods (PROGRESS)", 2023-2027, PI Alida Timar-Gabor.
(value 2 657 000 Euro)

European Research Council Grant 678106, Horizon 2020, „Integrated dating approach for terrestrial records of past climate using trapped charge methods (INTERTRAP)", 2016-2021, PI Alida Timar-Gabor. (value 1 500 000 Euro)

2. EEA-RO-NO2018-0126, „Cave deposits as archives of climate and environmental changes. A Center of Excellence in speleological research", grant coordinated by Silviu Constantin," Emil Racovita" Speleology, 2019-2023, BBU partner PI Alida Timar-Gabor. (value 200 000 Euro)
3. PN-III-P3-3.6-H2020-2016-0016, „Premierea H2020 Integrated absolute dating approach for terrestrial records of past climate using trapped charge methods", 2016-2021, PI Alida Timar-Gabor. (value 375 000 Euro)
4. PN-III-P1-1.1-TE-2016-0814, „Studies on the effects of land use changes on soil erosion and increased sedimentation using radionuclides", 2018-2020, PI Robert Begy. (value approx. 100 000 Euro)

5. PN-III-P1-1.1-TE-2021-0213 "Carbon sinks or sources: assessing the impact of climate change and anthropic activities on peat development in SE-Europe over the last 150 year (CLIMPEAT)" 2022-2024 PI Robert Begy. (value approx. 100 000 Euro)

6. PN-III-P1-1.1-PD-2019-0895, „To what extent can uncertainties on luminescence ages be reduced: a field study on the variability of ages obtained on coeval sedimentary samples (PRECLUM)", 2020-2022 PI Daniela Constantin. (value approx. 50 000 Euro)

Awards received by members of the Environmental radioactivity and Nuclear Dating Centre during the last 5 years

2023- Grigore Moisil award for exact sciences Virtus Excelsior Gala, under the patronage of Romanian Academy, first edition, 2023 (Alida Timar-Gabor)

2022- Universitaria Award "Gândit în România", 1st edition 2022 (Alida Timar-Gabor)

2021- Martin Aitken prize for Fundamental research (best Oral presentation) at the 16th International Luminescence and Electron Spin Resonance Dating (LED) Conference (Aditi Dave)

2020- Best Oral Presentation award at the German LED Conference, Leipzig (Aditi Dave)

2020- Young Profession Award, VII. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection Conference, Institute of Radiochemistry and Radioecology, University of Pannonia, Veszprém, Hungary (Şerban Grecu)

2019- Best Poster award at the U.K. LED Conference, Copenhagen. (Aditi Dave)

Example of articles publishes in prestigious journals that cite our work

Optically stimulated luminescence dating using quartz
Murray, A., Arnold, L.J., Buylaert, J.-P., ...Smedley, R., Thomsen, K.J.
Nature Reviews Methods Primers, 2021, 1(1), 72
https://www.nature.com/articles/s43586-021-00068-5

East Gobi megalake systems reveal East Asian Monsoon dynamics over the last interglacial-glacial cycle
Li, H., Yang, X., Scuderi, L.A., ...Wang, L., Wang, X.
Nature Communications, 2023, 14(1), 2103
https://www.nature.com/articles/s41467-023-37859-1

Luminescence as a Sediment Tracer and Provenance Tool
Gray, H.J., Jain, M., Sawakuchi, A.O., Mahan, S.A., Tucker, G.E.
Reviews of Geophysics, 2019, 57(3), pp. 987–1017
https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019RG000646

Depth-dependent soil mixing persists across climate zones
Gray, H.J., Keen-Zebert, A., Furbish, D.J., Tucker, G.E., Mahan, S.A.
Proceedings of the National Academy of Sciences of the United States of America, 2020, 117(16), pp. 8750–8756

https://www.pnas.org/doi/10.1073/pnas.1914140117

Disentangling variations of dust concentration in Greenland ice cores over the last glaciation: An overview of current knowledge and new initiative
Li, Y., Song, Y., Li, X., ...Gholami, H., Li, Y.
Earth-Science Reviews, 2023, 242, 104451
https://www.sciencedirect.com/science/article/pii/S001282522300140X

Loess landscapes of Europe – Mapping, geomorphology, and zonal differentiation
Lehmkuhl, F., Nett, J.J., Pötter, S., ...Viehweger, J., Hambach, U.
Earth-Science Reviews, 2021, 215, 103496
https://www.sciencedirect.com/science/article/pii/S0012825220305420

Loess genesis and worldwide distribution
Li, Y., Shi, W., Aydin, A., Beroya-Eitner, M.A., Gao, G.
Earth-Science Reviews, 2020, 201, 102947
https://www.sciencedirect.com/science/article/pii/S001282521930114X

Two-stage mid-Brunhes climate transition and mid-Pleistocene human diversification
Ao, H., Rohling, E.J., Stringer, C., ...Qiang, X., An, Z.
Earth-Science Reviews, 2020, 210, 103354,
https://www.sciencedirect.com/science/article/pii/S0012825220304001

A Novel Nanocomposite Material for Optically Stimulated Luminescence Dosimetry
Nielsen, C.L., Turtos, R.M., Bondesgaard, M., ...Julsgaard, B., Balling, P.
Nano Letters, 2022, 22(4), pp. 1566–1572
https://pubs.acs.org/doi/10.1021/acs.nanolett.1c04384

Integrated system for population dose calculation and decision making on protection measures in case of an accident with air emissions in a nuclear power plant
Mlakar, P., Božnar, M.Z., Grašič, B., Breznik, B.
Science of the Total Environment, 2019, 666, pp. 786–800
https://www.sciencedirect.com/science/article/pii/S0048969719308125

Professor Dr. Alida Timar-Gabor-narrative CV

Pushing research frontiers in geochronology through innovative laboratories and integrated experimental techniques: A journey of dedication and teamwork in earth and environmental sciences

Alida Timar-Gabor is a professor of environmental radioactivity at the Faculty of Environmental Science and Engineering and the director of the Environmental Radioactivity and Nuclear Dating Centre at Babeş-Bolyai University (BBU) in Cluj-Napoca, Romania. She defended her Ph.D. in physics in 2010 and later achieved Habilitation in environmental science in 2015. Alida Timar-Gabor has been at the forefront of pioneering the applications of absolute dating methods for establishing sediment chronologies in Romania. Her contributions led to the establishment and current leadership of the Luminescence and Electron Spin Resonance Dating Laboratories at her home institution. These facilities will be enhanced in the following months with the addition of electron microscopy.

Despite starting her journey in a laboratory that had not yet fully established itself, even during her time as a Ph.D. student, Alida Timar-Gabor demonstrated determination in challenging prevailing notions within the field of luminescence dating. In the realm of optically stimulated luminescence dating of quartz, Alida Timar-Gabor is recognized as the pioneering researcher worldwide who reported a systematic deviation in the ages obtained from fine sands and fine silts for deposits over approximately 40 thousand years old, challenging the validity of numerous prior investigations, with significant implications for the luminescence dating community. Additionally, Alida Timar-Gabor established a strong network of collaborations in the paleoclimate community, successfully applied the method to other Quaternary environments and topics such as: eolian sands, paleosoils, lake sediments, eolianites, cave sediments and volcanic and engaged in dosimetry and materials studies.

Alida Timar-Gabor was the PI of INTERTRAP (678106, Horizon 2020, 2016-2021, "Integrated dating approach for terrestrial records of past climate using trapped charge methods"), a European Research Council Starting Grant, that held the distinction of being one of the first three ERC grants implemented in Romania, the first in her host institution, and the first in Romania in the field of Physical Science and Engineering. INTERTRAP allowed her to purchase research equipment worth over 1 million Euro and establish a state-of-the-art luminescence and electron spin resonance (ESR) dating laboratory at BBU. INTERTRAP project spanned four continents, focusing on dating methods for sediments and paleoclimate studies, adressing both a geological as well as a methodological problem. The paleoclimate approach of INTERTRAP consistined in (i) deriving luminescence ages and paleoclimate proxy records at high-resolution around the Pleistocene/ Holocene climate boundary recorded in loess deposits, (ii) comparing these records across four continents and (iii) comparing these terrestrial records with global key records to test for the synchronicity of change. INTERTRAP

members have shown that the magnetic susceptibility used as a proxy to correlate loess palaeosol sequences reflects a gradual transition from the Last Glacial towards the Holocene and that the onset of the magnetic signal enhancement produced by pedogenesis started around Termination 1 (~17 ka in the North Atlantic), as observed in radiocarbon-dated regional benthic $\delta^{18}O$ stacks, but before the stratigraphic Pleistocene/ Holocene transition dated at 11.7 ka in ice core records. On key sections previously used to highlight the environmental impact that North Atlantic climatic variability had on the terrestrial environments INTERTRAP members have shown that embryonic soils previously interpreted as reflecting Greenland interstadials are most likely reflecting regional hydroclimate variability, rather than global events. As such, it was proven that the practice of directly correlating rapid climate events identified for different archives should be discarded in the absence of absolute age control. The methodological approach of INTERTRAP aimed at developing more reliable dating methods for sediments older than about 40 ka by using ESR alongside luminescence methods. As such, Professor Timar-Gabor opened once again a new avenue of research in Romania, namely ESR dating of sediments. By performing single grain analysis, it was shown that brighter grains are considered to give more accurate results. As such, by using coarse grains instead of fine ones and by selecting the brighter grains, more accurate chronologies can be achieved.

In 2022 Alida Timar-Gabor has set a benchmark in Eastern and Central Europe, a region with traditionally low success rates in obtaining ERC funding, by securing a second grant of this kind, PROGRESS (101043356, Horizon Europe, 2023-2027, "Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods"). The main objective of PROGRESS is the development of quartz-based provenance methods, by understanding the changes occurring at atomic level in quartz over geological time, by complex investigations samples of different types with ages spanning over a Ga scale. This project will enable expanding our laboratories by coupling luminescence and paramagnetic electron resonance dating techniques with spectrally resolved cathodoluminescence based on scanning electron microscopy and other spectroscopic techniques on state-of-the-art equipment worth over 1.5 million Euro. The previous coupling with the paramagnetic electron resonance dating laboratory has added a unique dimension, because, although these techniques are popular for other applications, there are only a few, probably less than ten laboratories in the world that combine these experimental methods for dating purposes. The implementation in this laboratory of microscopic and cathodoluminescence techniques designed towards the same end will provide the BBU laboratory with a distinct competitive advantage in the luminescence and paramagnetic electron resonance dating community. Due to PROGRESS, our laboratory will not only be a major player in the field, but one of the laboratories that will bring about major qualitative leaps in this community.

Although Alida Timar-Gabor spent her whole career based in Romania, she has always maintained close ties with the international academic community. Alida Timar-Gabor's publication record includes over 100 scientific articles, published in indexed journals, out of which half are already in the top 25% most cited documents worldwide according to Scopus. More than half of her publications are internationally collaborative, with over 200 scientific collaborations with eminent researchers and institutions worldwide and close collaborations with some esteemed researchers in luminescene dating such as Professor Ann Wintle or Professor Andrew Murray. The average field weight citation impact factor for the articles she has published as first author is over 3 according to Scopus. Her expertise is acknowledged as she referees for esteemed entities such as the European Research Council (ERC) and the Swiss National Science Foundation. Her role as a distinguished referee extends to multiple reputable journals and she holds an editorial position for the Global and Planetary Change Journal. She stands on the scientific committee of the most reputable conference in her field, the international conference on luminescence and electron spin resonance dating. Her accolades encompass a wide range of honors, including Premiul "Grigore Cobălcescu" al Academiei Române, Premiul Ad Astra Excelenţă în cercetare, L'Oréal UNESCO For Women in Science Award. Other notable awards include the International Danubius Young Scientist Award, The Woman Innovation Award, and the Universitaria Award "Gândit în România." Additionally, she was featured by Elsevier as one of the women with remarkable achievements in physics.

Professor Timar-Gabor advocates for open, transparent, and merit-based selection criteria in her projects, while promoting inclusivity. Her mentorship extends to postdoctoral researchers from diverse continents, reflecting a global perspective and dedication to diversity in scientific research. She is a member of ERC grantee`s association and currently she represents researchers from Central and Eastern Europe in the Equality, Diversity, and Inclusion Committee of European Geosciences Union. She acted as main convener of Union Symposia "Challenges and solutions to increasing accessibility, representation, recognition and diversity of European countries in the European geosciences community" at the European Geosciences union in 2023. Additionally, she was the representative of Romanian researchers at the Forum Future Europe held at Leopoldina in 2019. Her completion of the Massachusetts Institute of Technology Professional Education Certificate program on "Women in Leadership: Becoming an Agent of Change" reflects her dedication to further developing her leadership skills, which she uses to inspire and lead her research teams.

A distinguishing facet of Alida Timar-Gabor's career is her dedication to mentoring young researchers. Her impact as a mentor and role model has nurtured the careers of aspiring scientists, as she has supervised five postdoctoral students, over ten doctoral students and over thirty master's and bachelor`s students in her 15-year career so far. The CV`s of her team members presented below stand as testament to her unwavering dedication not only to science but also to her team.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: **Gabor (born Timar) Alida Iulia**

Date of birth: 17 September 1983

Researcher unique identifier(s) ORCID 0000-0003-4799-3866, Scopus ID 15019887000,

Google Scholar: https://scholar.google.ro/citations?user=StsjnjsAAAAJ&hl=ro

H=32 (whole career)/ H=24 (since 2019)

Education

2015: Habilitation in Environmental Science Babeş-Bolyai University (BBU), Cluj-Napoca, Romania.

2010: **PhD in Physics,** Babeş-Bolyai University, Cluj-Napoca, Romania, supervised by Prof. Dr. Constantin Cosma; PhD thesis title: *„Retrospective luminescence dosimetry: applications in archaeology, geology and environmental studies."*

2005 - 2006: Master "Atomic and nuclear methods in environmental research", Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Master thesis: "*Comparing Quartz OSL and Polymineral IRSL Ages for Chinese Loess: A case study*" Promoters: Prof. Dr. Constantin Cosma –Faculty of Environmental Science, Babeş-Bolyai University, Cluj-Napoca, Romania; Prof. Dr. Peter Van den haute and Dr. Dimitri Vandenberghe, Department of Mineralogy and Petrology, Gent University, Gent, Belgium.

2001 - 2005: Bachelor's degree in physics, BBU.

Current positions

2019-present: Professor, Department of Environmental Analysis and Engineering, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania.

Previous positions: 2015-2019 associate professor, 2012-2015 lecturer, 2008-2012 teaching assistant at Department of Environmental Analysis and Engineering, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania.

Fellowships and awards

Fellowships: 2005- 2006: Erasmus fellow in Gent University, Gent, Belgium. 2007 -2008: Visiting junior researcher, Department of Mineralogy and Petrology, Gent University, Gent, Belgium.

International awards:

2018- Elsevier Virtual Special Issue on Women in Physics

2015- Danubius Young Scientist International Award

2008- International Award „Vagn Mejdahl Prize" for Outstanding Poster Presentation - „ 12th International Conference on Luminescence and Electron Spin Resonance Dating", 18th- 22nd September 2008, Beijing, China.

National awards:

2023- Grigore Moisil award for exact sciences Virtus Excelsior Gala, under the patronage of Romanian Academy, first edition, 2023

2022- Universitaria Award "Gândit în România", 1st edition 2022

2018- Young Researchers in Science and Engineering, Romania. **2016-** The Woman Innovation Award, Romania. **2015-** L`Oréal "Women in Science" Romania award in the field of physical sciences. **2014-** „Grigore Cobălcescu" Award of the Romanian Academy, in the field of Geology. **2014-** Ad Astra Award for Excellence in Research, Earth and Space Sciences, Romania. **2014** and **2016-** „Excellentia" award, in recognition of outstanding teaching activities, at the nomination of the council of students of Babeş-Bolyai University of Cluj Napoca. **2010-** Distinction „The story of my PhD", in the field of Environmental Science awarded by the Romanian Council of Research.

Supervision of graduate students and postdoctoral fellows

2010-present: 4 postdoctoral fellows, 12 doctoral students, 33 master and bachelor students enrolled at Babeş-Bolyai University, Cluj-Napoca, Romania.

Post-doctoral students supervised in the framework of the grants lead by the PI: Dr. Daniela Constantin (2016 present), Dr. Aditi Dave (2022-present), Dr. Zuzanna Amelia Kabacińska (2020-2023), Dr. Khalif Benzid (2018-2020).

Doctoral students (year of graduation given in brackets): Daniela Constantin (2015), Monica Zeciu-Dolha (2016), Oana Trandafir-Antohi (2018), Hedvig Simon (2018), Valentina Anechitei-Deacu (2018), Andrada Pascu (2019), Viorica Tecsa (2020), Madalina Stefana Groza (2020), Anca Avram (2021), Laura del valle Villalonga (2021), Szabolcs Kelemen (2023). Current PhD students: Șerban Constantin Grecu.

Foreign students that performed research stages in the laboratories lead by the PI: Dr. Janina Bosken (RWTH Aachen), DAAD fellowship, February-May 2019, PhD student Aditi Dave (Max Plank Institute for Chemistry Mainz), May-July 2019 and August-December 2020, *Laura del Valle Villalonga,* Departament de Ciències de la Terra, Universitat de les Illes Balears, Spain, July 2013, April-May 2014, November 2017-April 2018.

Teaching activities

2006-present: Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Courses and practical exercises in: Environmental Radioactivity, Environmental Physics, Nuclear Geochronology.

Organisation of meetings

Main convener of Union Symposia "Challenges and solutions to increasing accessibility, representation, recognition and diversity of European countries in the European geosciences community", EGU General Assembly, 2023, 23-28 Aprilie, Viena, Austria.

Organizing an Information Event on the European Research Council Program, October 2023 https://news.ubbcluj.ro/programul-consiliului-european-pentru-cercetare-erc-prezentat-la-ubb/

2013- INTIMATE Workshop on Terrestrial Records from Eastern Europe", March 7-9, Cluj-Napoca, Romania. 2012 -First East European radon symposium, FERAS, September 2-5, Cluj-Napoca, Romania.

Member in the scientific committee conferences

17th International Conference on Luminescence and Electron Spin resonance Dating, 26-30 June 2023, Copenhaga, Danemarca. https://led2023.com/

14th Conference on the Methods of Absolute Chronology (https://mach2023.polsl.pl/) in Gliwice, Poland 17-19 May 2023.

International Conference on Materials - Properties, Measurements and Applications, ICMPMA 2022, https://icmpma.fmnc.ac.in/, 9 -13 May 2022.

Eurasian Environmental dynamics and humans' interactions over different time scales, Belgrade, 27-29 June2019

International Symposium on Eolian deposits in Earth History, Beijing, 12-15 October 2015.

Editorial Activity

Global And Planetary Change-member in the editorial board.

https://www.sciencedirect.com/journal/global-and-planetary-change/about/editorial-board

Invited editor - Proceedings of International Conference on Materials - Properties, Measurements, and Applications (ICMPMA 2022), IOP publishing. Preface - IOPscience

Reviewing activities

Reviewers board of the following journals: Radiation Measurements, Quaternary Geochronology,

Quaternary Science Reviews, Quaternary Research, Quaternary International, Boreas, Journal of Asian Earth Sciences, Applied Radiation and Isotopes, Geochronometria, Radiation Physics and Chemistry, Climate of the Past, Radiation and Environmental Biophysics, Geomorphology, Methods and Protocols, Tectonics, GChron, Journal of Archaeological Science, Physics and Chemistry of Minerals.

Funding agencies: National Science Centre Poland, National Research Development and Innovation Office, Hungary, Research Grants Council Hong Kong, European Research Council.

Jury member for L`Oréal for "Women in Science" Romania. Member in panels for best student awards at various luminescence and electron spin resonance international meetings.

Evaluator for PhD thesis at foreign universities:

Ghent University (ARWU top 100), Belgium, 2023, Technical University of Denmark, 2018 and 2024 (ARWU 100-200), Universitat de les Illes Balears, Spain, 2016.

Invited talks

Loess and Archeology Workshop, RWTH Aachen University (ARWU 200-300), 27-29 November **2019**, "Dating and provenance of loess by luminescence and ESR".

2016 LOESSFEST, University of Wisconsin, 22-25 September **2016,** "Results and challenges from optically stimulated luminescence dating of loess using single aliquot regeneration protocol on quartz"

CRC- Our way to Europe Workshop, RWTH Aachen University, 3-4 July **2015**, "Optical dating of (Last Glacial) loess in Romania"

European workshop on the luminescence behaviour and processes in quartz, University of Bern, 22-23 April **2013,** "Natural and laboratory generated dose response curves from quartz of different grain sizes: results and challenges from luminescence dating of Romanian loess".

Solicited talks: EGU General Assembly, Vienna, Austria, 7-12 April **2019**, "From atoms and radiation towards reconstructing past climate change" (TM7 ECS Frontier research in the geosciences: hot topics and advancements) and EGU General Assembly, Vienna, Austria, 23-18 April **2017**, "How to write a successful ERC Grant proposal" (SC5 ECS)

Chairman at prestigious conferences:

17th International Conference on Luminescence and Electron Spin resonance Dating, 26-30 Iunie 2023, Copenhaga, Danemarca.

UKLED 2019, 26-28 August, 2019 Roskilde, Danemarca.

15th International Conference on Luminescence and Electron Spin resonance Dating, 11-15 Septembrie 2017, Cape Town, Africa de Sud.

14th International Conference on Luminescence and Electron Spin resonance Dating, 7-11 Iulie 2014, Montreal, Canada.

Scientific research grants

PI of European research Council (ERC) Consolidator Grant 101043356, HORIZON EUROPE, „PROGRESS- Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods", 2023-2027 (2 657 000 Euro)

PI of „INTERTRAP- Integrated dating approach for terrestrial records of past climate using trapped charge methods", 2016-2021, European Research Council (ERC) Starting Grant 678106, HORIZON 2020. (1 500 000 Euro)

Partner team PI in "CARSTHIVES- Cave deposits as archives of climate and environmental changes. A Center of Excellence in speleological research", EEA-RO-NO2018-0126, 2019-2023, EEA and Norway grants. (200 000 Euro)

PN-III-P3-3.6-H2020-2016-0016, 7/2006, 2016-2021, "Premierea H2020 Integrated absolute dating approach for terrestrial records of past climate using trapped charg methods (INTERTRAP)" (375 000 Euro).

CNCS-UEFISCDI PN II- RU-TE-2011-3-0062, "Dating the Romanian Part of the European Loess Belt Using Luminescence"-2011-2014 (aprox 200 000 Euro)

TD CNCSIS 395, „Dozimetrie retrospectiva luminescenta cu aplicatii in arheologie, geologie si mediu"- 2008 -2009 (aprox 10 000 Euro)

National services contracts with various partners: Romanian Academy, Cluj-Napoca - Babes-Bolyai University, Cluj-Napoca, **2013-2014**– Dating cave sediments by OSL. Contract value: ~2000 Euro.

National services contract University of Bucharest – Babeș-Bolyai University, Cluj-Napoca, **2012-2013** – Optically stimulated luminescence analysis of cave sediments. Contract value: ~2000 Euro.

National services contract University of Bucharest – Babeș-Bolyai University, Cluj-Napoca, **2011-2012** - Optically Stimulated Luminescence dating of 8 sediment samples collected from coastal barriers Saele, Chituc and Lupilor. Contract value: ~2000 Euro.

Memberships of scientific societies

Association of ERC Grantees

Member of European Geosciences Union (EGU), representative of Eastern European scientists in Equality, Diversity and Inclusion working group of EGU starting 2022.

Institutional responsibilities

2016-present: Director of Environmental Radioactivity and Nuclear Dating Centre at the Institute for Interdisciplinary Research in Bio–Nano–Sciences, Babeş-Bolyai University, Cluj-Napoca, Romania and scientific secretary of the institute. **2021-present**: member of the Faculty Council at Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. **2012-present**: member of the Council of Research of Babeş-Bolyai University. **2016-2020:** member of the national council of attesting academic titles (CNATDCU), Romania.

Recent media appearances, other (selection)

2020 From atoms and radiation towards reconstructing past climate change, https://edition.pagesuite-professional.co.uk/html5/reader/production/default.aspx?pubname=&edid=c2e20a7f-4d97-4ec6-b15e-ea040b9b71d7

Sinteza

Sinteza | Istoria unei granule de nisip – de la atomi și radiații spre cuantificarea proceselor geologice (revistasinteza.ro)

https://www.revistasinteza.ro/cercetarea-n-pandemie-cum-s-a-navigat-in-apele-necunoscute?fbclid=iwar0udjqcgkzob6jutzpqy8dmbwsjoc2snljql5teupkiiqbmbkety4nmfwu

Stiință și tehnica

https://stiintasitehnica.com/revista-stiinta-tehnica-nr-84-martie-2019-editie-super-speciala-pentru-ele/

European Researchers night 2020, 2022

https://www.youtube.com/watch?v=c_4WlVMtM0w

List of Publications

Books- Alida Timar-Gabor, Dozimetrie prin termoluminescenţă (TL) şi luminescenţă stimulată optic (OSL): aplicaţii în studii de mediu, **Presa Universitară Clujeană 2013**, 400 pag, ISBN: 978-973-595-534-2.

Book Chapters- Daniel Veres, **Alida Timar-Gabor,** capitol "Climate Change and Dating", in SAS Encyclopedia of Archaeological Science, ISBN: 978-0-470-67461-, **Wiley Blackwell, 2019.**

https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119188230.saseas0097

Alida Timar-Gabor, Cristian Panaiotu, Daniel Veres, Cristian Necula, Daniela Constantin, capitol "The lower Danube loess, new age constraints from luminescence dating, magnetic proxies and isochronous tephra markers" in volume Landform Dynamics and Evolution in Romania, **Springer 2016**, pag 679-697.

https://link.springer.com/chapter/10.1007/978-3-319-32589-7_29

Articles in indexed journals

1. Del Valle Villalonga, L., **Timar-Gabor, A.**, Fornós, J.J, 2023. Chronology of Pleistocene Sedimentary Cycles in the Western Mediterranean. ***Quaternary Science Reviews,*** accepted.
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Seria H Nr. [redacted]

ROMÂNIA

MINISTERUL EDUCAȚIEI, CERCETĂRII, TINERETULUI ȘI SPORTULUI

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și în baz[redacted]
as to Order no. [redacted]
et vu l'Ordre du Ministre de l'Éducation, de la Recherche, de la Jeunesse et des Sports [redacted]
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Registrar / Secrétaire Général / Chefsekretär

Nr. [redacted]

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Limba oficială de pregătire a doctoratului ***română***
Official language of the doctoral programme / Langue officielle du programme / Offizielle Sprache des Promotionsstudiums

Supervisor / Directeur de thèse / Wissenschaftlicher Betreuer

Title of thesis / Intitulé du sujet de thèse / Titel

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Associate Professor Dr. Begy Robert-Csaba-narrative CV

Precise measurement of natural and anthropogenic radioactive pollutants and establishing accurate chronologies for the fast-changing climate of the last centuries

Begy Robert-Csaba is an Associate Professor at the Faculty of Environmental Science and Engineering and the Head of the Nuclear Spectrometry Laboratory within the Environmental Radioactivity and Nuclear Dating Centre at Babeş-Bolyai University (BBU) in Cluj-Napoca, Romania. He earned his Ph.D. in physics in 2009 and later achieved his Habilitation in environmental science in 2022. Begy Robert-Csaba has been at the forefront of pioneering the applications of ^{210}Pb dating methods for constructing lake sediment chronologies in Romania. His contributions led to the establishment of the Nuclear Spectrometry Laboratory at his home institution, encompassing gamma, alpha, and beta spectrometric techniques. Furthermore, the associated research activities focus on the development of the radiochemical separation protocols required for the application of spectrometric methods in environmental monitoring and dose assessment studies. The aforementioned endeavors serve as the pillars upon which Begy Robert-Csaba's research career has been built.

Begy Robert-Csaba earned his PhD in 2009 by submitting his thesis entitled "*Environmental Studies using ^{210}Pb radioisotope*". The overriding objective of the thesis was to implement the ^{210}Pb dating method at Babes-Bolyai University in Cluj-Napoca and apply this technique to lakes of great importance in Romania. At the same time, he was awarded his first research grant (grant for PhD students in Romania – **CNCS/UEFISCDI- TD-397**). During his PhD studies, Begy Robert-Csaba investigated a topic that is of current and future importance as the study of the past, by unraveling earlier natural processes, has the potential of predicting future environmental trends. After graduating from his PhD program, Begy Robert-Csaba's scientific activity was focused on the research of radon in residential buildings, a topic with profound social implications for public health safety. During this period, he developed a system for monitoring and controlling residential radon concentrations, which led to the grant of the **129264/G01T** patent "*Automated system for monitoring and controlling residential radon concentrations*". This four-year period of research resulted in the publication of numerous scientific papers, addressing the challenges of remediation techniques for residential radon.

From 2012 to 2015, Begy Robert-Csaba was the PI of **PNI-II-RU-TE-2012-3-0351** Research projects for stimulating young independent teams (TE) "*Radionuclides as tracers of the anthropic influence on the Danube Delta sedimentary processes*". The main purpose of the project was the study of the effects of building the hydroelectric power plants Iron Gate I and II on the sediment accumulation in the Danube Delta. The findings highlighted that from the large number of investigated lakes, only a fraction preserved the sedimentary footprints associated with the large-scale construction of the power plants. These observations on the sedimentation rates, which have increased

by four-fold in the last 34 years, made a significant contribution to shaping a new research trajectory. As a result, from 2018 to 2021, Begy Robert-Csaba was the PI of a second Research project for stimulating young independent teams (TE), **PN-III-P1-1.1-TE- 2016-0814**, "*Studies on the effects of land use change on soil erosion and high sedimentation rates using radionuclides*". The project tackles the recent changes in sedimentation rates in important glacial and low-land lakes, aiming to identify and quantify the anthropic causes that triggered these effects. The results allowed for the disentangling of the impact of different anthropic activities on lacustrine ecosystems, further highlighting the negative consequences of intensive agriculture. The main challenge associated with isolating the anthropic component was the subtraction of the natural (climatic) baseline from the obtained data. This difficulty was addressed by the use of peatlands, which provided the climatic footprint for constructing such a reference level. Further understanding the valuable climatic records in peat bogs, amplified by their pivotal role in the global carbon cycle, Begy Robert-Csaba developed a novel research proposal, which materialized into a third Research project for young independent teams (TE) **PN-III-P1-1.1-TE2021- 0213** *"Reservoir or source of C: assessing the impact of climate change and anthropogenic influences on SE-European peatlands over the last 150 years"*, ongoing since 2021, of which Begy Robert-Csaba is PI. The project aims to determine the mechanisms and factors controlling the carbon dynamics within peat ecosystems, and the extent to which peat degradation and the subsequent carbon loss may contribute to greenhouse gas emissions and climate change intensification. The project covers an extended area, encompassing seven European countries, that allows for a broad latitudinal comparison of the ecosystem productivity, as well as its potential in reconstructing micro- and macro-climatic variations. The results identified increased apparent carbon storage capacities of peatlands, while the net balance remains to be established.

Alongside the fundamental research conducted by Begy Robert-Csaba, he strongly emphasized applicative research, leading numerous radiological and dose assessments in different environments. Included among these are: multiple analyses of the radioactive contamination at a regional scale that were performed following the Fukushima and Chernobyl accidents; radionuclide transfer from mine tailings into stream river sediments; as well as dose assessment studies of over 100 spring and geothermal water sources, with extended applicabilities in the public health safety sector.

During his 15-year teaching experience at the Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Begy Robert-Csaba has coordinated over 30 BSc and MSc thesis, as well as 3 Special Scholarship for Scientific Activity awarded by Babeș-Bolyai University. The courses taught by Begy Robert-Csaba incorporated multiple elements of his research, to facilitate a seamless knowledge transfer process. This approach aims to help students not only become familiar with but also actively embrace science, fostering a dynamic and practical learning experience.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: **Begy Robert-Csaba**

Date of birth: 10 June 1980

Researcher unique identifier(s) Scopus ID: 26647449700,

Google Scholar https://scholar.google.com/citations?user=mSeyWZgAAAAJ&hl=en

INDEX h (Hirsch) (Scopus) = 14 – excluding auto citations

INDEX h (Hirsch) (Google Scholar) = 16/ 12 (since 2019)

Education

2023: Habilitation in Environmental Science Babeş-Bolyai University (BBU), Cluj-Napoca, Romania.

2005 - 2009: PhD student in Physics, Nuclear Physics at the Faculty of Environmental Science and Engineering, Babeş-Bolyai University, under the supervision of Prof. PhD. Constantin Cosma. Title: "*Environmental studies using the Pb-210 radionuclide*"

2005-2006: Doctoral school "*Evolution of terrestrial systems and the environment*" - Faculty of Environmental Science, Babes-Bolyai University, Cluj-Napoca

2004-2005: MSc student "*Atomic and nuclear methods in the study of the environment*" – Faculty of Environmental Science, Babes-Bolyai University, Cluj-Napoca. The title of the MSc thesis "*Measurement of Ra-226 in commercially available mineral waters in Romania*", scientific coordinator Prof. PhD. Constantin Cosma, Faculty of Environmental Science, Babes-Bolyai University Cluj-Napoca, Romania and Prof. PhD. Somlai Janos and PhD. Tibor Kovacs, Institute of Radiochemistry and Radioecology, Pannonia University of Veszprem, Hungary.

1999-2004: Bachelor's degree in Physics, Faculty of Physics, Babeş-Bolyai University, Cluj-Napoca. Bachelor thesis: "*Construction and testing of an experimental device for measuring Radon*"

Current positions

2021 to present - Associate Professor, Department of Environmental Science, Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania

2017 to present - Grade I Scientific Researcher, Interdisciplinary Research Institute in Bio-Nano-Sciences, Babes-Bolyai University, Cluj-Napoca, Romania

Previous positions:

2009 -2021 - Lecturer Department of Environmental Science, Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania

Supervision of graduate students and postdoctoral fellows

2009 – present: Over 40 master's and bachelor students enrolled at Babeș-Bolyai University, Cluj-Napoca, Romania; Three Special Scholarship for Scientific Activity (with a duration of one year each)

Teaching activities

Faculty of Environmental Science and Engineering, Babeș-Bolyai University, Cluj-Napoca, Romania. Courses and practical exercises in: Basics of environmental physics, Environmental Radioactivity, Environmental Informatics, Unconventional Energies, Biophysics, Atmospheric Physics, Meteorology and Climatology, Radioecology

Institutional responsibilities

Head of Nuclear Spectrometry laboratory in the Center for Environmental Radioactivity and Nuclear Dating within the Interdisciplinary Research Institute in Bio-Nano-Sciences, of Babes-Bolyai University, Cluj-Napoca

Reviewing activities

Review board of the following journals: Geochronometria **(IF=1.243),** J. Environ. Radioact **(IF=2.047),** Appl. Radiat. Isot. **(IF=1.136),** Radioanal. Nucl. Chem. **(IF=0.983),** Sci. Total Environ. **(IF=3.976),** Estuarine, Coastal and Shelf Science **(IF=2.335),** Environ. Scie. and Pollut. Res. (**IF=2.76**), Quat. Geochronol. (**IF=3.142**), Scientific Reports **(IF=3.998)**

Evaluator for PhD thesis at foreign universities: University of Pannonia, Veszprem, Hungary, 2023, 2022 and 2021

Memberships of scientific societies

Member of the Hungarian Radiochemistry Society (Hungarian Chemical Society); Member of the scientific committee of RAD conferences (4,5,6,7,8,9,10); Member of the scientific committee of the VIII conference. TREICEP

Invited talks

VIII. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection, 4-7 October **2022** Vonyarcvashegy, Hungary, "*210Pb dating as a tool for the investigation of environmental processes: From anthropic effects to climate changes*"

Scientific research grants (selection)

2024 – Member of European Research Council (ERC) Consolidator Grant 101043356, HORIZON EUROPE, „PROGRESS- *Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods*", 2023-2027

2022 - PI of CNFIS/UEFISCDI human resources project TE grant: **PN-III-P1-1.1-TE2021- 0213,** with the title "*Reservoir or source of C: assessing the impact of climate change and anthropogenic influences on SE-European peatlands over the last 150 years*"

2020 – Member of „INTERTRAP- *Integrated dating approach for terrestrial records of past climate using trapped charge methods*", 2016-2021, European Research Council (ERC) Starting Grant 678106, HORIZON 2020

2018 - PI of CNFIS/UEFISCDI human resources project TE grant: **PN-III-P1-1.1-TE- 2016-0814,** with the title "*Studies on the effects of land use change on soil erosion and high sedimentation rates using radionuclides"*

2012 – PI of CNFIS/UEFISCDI human resources project grant **TE: PNI-II-RU-TE-2012-3-0351,** with the title "*Radionuclides as tracers of the anthropic influence on the Danube Delta sedimentary processes*"

List of Publications

1. **Begy, RC**., Savin, CF., Korponai, J. et al., 2024 *Investigation of the last two centuries sedimentation dynamics in high-altitude lakes of Southern Carpathians, Romania*. ***Sci Rep*** **14,** 1391 https://doi.org/10.1038/s41598-024-51812-2
2. Kelemen, S., Savin, CF., Timar-Gabor, A. **Begy, R-C.**, 2023 *A comparative study on digestion methods for ^{210}Po determinations by alpha spectrometry on peat bog samples*. **J Radioanal Nucl Chem** https://doi.org/10.1007/s10967-023-09157-z
3. **R-Cs. Begy**, C-F. Savin, A. Ruskál, 2023 Recent carbon sequestration dynamics in four temperate SE European peatlands using ^{210}Pb dating, **Journal of Environmental Radioactivity**, Volume 264,107-208, https://doi.org/10.1016/j.jenvrad.2023.107208
4. CF Savin, FL Forray, C Tănăselia, **RC Begy** 2023, Radiological assessment of carbonated spring waters in regard to the lithological characteristics of Harghita county, Romania **The**

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5. **Begy R.-C**., Savin C.-F., Süle D.-K., Nuhanovic M., Giagias E., Kovács T. 2022 *Radiological investigation of natural carbonated spring waters from Eastern Carpathians, Romania.* **Journal of Radioanalytical and Nuclear Chemistry** 331 (3), pp. 1439 – 1450. https://doi.org/10.1007/s10967-022-08195-3
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Scientific researcher III Dr. Daniela Constantin-narrative CV

Tapping into quartz light to refine the precision and accuracy of geochronology worldwide

Daniela Constantin is a scientific researcher level III at the Environmental Radioactivity and Nuclear Dating Centre at Babeș-Bolyai University (BBU) in Cluj-Napoca, Romania. She developed an early interest in luminescence techniques and their applications in environmental sciences starting at the bachelor level at the Luminescence Laboratory at the Environmental Radioactivity and Nuclear Dating Centre at Babeș-Bolyai University. She began by using thermoluminescence (TL) for measuring environmental radioactivity doses and during master's she proceeded to optically stimulated luminescence (OSL) techniques applied to date quartz extracted from a variety of Quaternary sediments in Romania. She earned her Ph.D. in geology in 2015 with a thesis focused on establishing an absolute chronology framework for loess deposits in Romania. This is imperative for securely constraining the timing of major Late Quaternary paleoclimate fluctuations recorded in loess-paleosol alternations. These studies also proved the occurrence at large spatial scale of a phenomenon firstly reported in the literature on two loess sites in Romania. That is a discrepancy in the luminescence ages yielded by different grain-sizes of quartz extracted from the same sample, for ages beyond 40 ka. Thus, Daniela Constantin was involved in novel methodological investigations into the luminescence properties of quartz and reported natural luminescence dose response curves and their divergence from the laboratory constructed dose response curves. Such studies are extremely rare in luminescence dating. Daniela Constantin carried out the above work during her master and PhD as part of the young teams research project "*Dating the Romanian Part of the European Loess Belt Using Luminescence*" lead by Alida Timar-Gabor at Babeș-Bolyai University.

As a postdoctoral researcher in the European Research Council (ERC) Starting Grant „*INTERTRAP-Integrated dating approach for terrestrial records of past climate using trapped charge methods*", awarded to Alida Timar-Gabor and implemented at the Babeș-Bolyai University, Daniela Constantin was in charge of the application part of the project which involved dating the Pleistocene-Holocene climatic transition using the magnetic susceptibility signal as a paleoclimate proxy in loess sites from China, Europe and North America. Daniela Constantin and team members reported that the magnetic susceptibility signal increased gradually from the Pleistocene loess to the Holocene soil. The initiation of magnetic susceptibility enhancement and consequently the onset of Pleistocene-Holocene climatic transition was dated prior to ~11.7 ka, around 14–17.5 ka and was not synchronous among all of the investigated sites. The timing of this transition generally agreed with the ~17.5 ka date for Termination 1 in oxygen isotopes record in marine sediments from North Atlantic and to the global sea-level rise event Meltwater Pulse 1A dated to 14.7 ka. The high-resolution ages on quartz proved the continuity of dust accumulation over the Last Pleistocene loess deposition into Holocene soil

formation. This provided empirical evidence, for the first time in the literature, of accretionary pedogenesis in Holocene topsoil in loess sites at mid-latitudes, with important implications for the interpretation of magnetic susceptibility and other paleoclimatic proxies.

During the INTERTRAP project, an extremely novel sampling strategy was adopted by collecting doublet coeval samples, which allowed the observation of unexpected differences in the luminescence results. This inspired Daniela Constantin to investigate the variability in the luminescence ages by applying a novel sampling strategy involving multiple coeval sediment samples, in the postdoctoral research grant PRECLUM "*To what extent can uncertainties on luminescence ages be reduced: a field study on the variability of ages obtained on coeval sedimentary samples*" having Alida Timar-Gabor as mentor. This was the first empirical dataset obtained on luminescence ages of multiple coeval samples and revealed that the scatter in the ages is dictated by the scatter in the environmental radiation dose rates. The novel sampling strategy allowed to quantify a maximum attainable precision of 1.1% (0.5 ka) using quartz luminescence in a sedimentary context dated to ~ 40 ka. These empirical data confirmed that obtaining a total uncertainty below 5-6 % for an OSL age is very difficult and might indicate an underestimation of the systematic sources of uncertainty.

Apart from her work involving dating applications on quartz extracts, Daniela Constantin has a constant interest for understanding the fundamental processes related to the luminescence signals in quartz as well as acquiring new skills and learning new techniques. She is able to pursue these interests as a team member in the European research Council (ERC) Consolidator Grant, awarded to Prof. Alida Timar-Gabor, "*PROGRESS - Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods*". She currently explores the potential of the quartz luminescence sensitivity as indicator for the provenance of sediments.

The research conducted by Daniela Constantin materialized in 1 article in a journal ranked in Q1 and 2 articles in journals ranked in Q2 published as main author in the last 5 years. She has an *h*-index=12 and 497 citations according to Google Scholar. She is a reviewer for the major journals in the luminescence dating field, e.g., Quaternary Science Reviews, Quaternary Geochronology, Radiation Measurements. Besides research activities Daniela Constantin enjoys teaching and working with students. She has been a member in the guidance committee of 7 PhD students, co-supervised 4 master and 2 bachelor theses. Daniela Constantin built her entire academic career at the Environmental Radioactivity and Nuclear Dating Center at Babeș-Bolyai University and valued national and international collaborations as reflected by the diversity of co-authors in her publishing record.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: **Constantin Daniela**

Date of birth: 12 February 1987

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h-index=12 (since 2019)

Education

2015: PhD in geology, Babeş-Bolyai University, Cluj-Napoca, Romania, supervised by Prof. Dr. Codrea Vlad. PhD thesis title: "*On the dating of the last glacial cycle in loess deposits using quartz optically stimulated luminescence.*"

2012: Master's degree, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Master thesis title: "*SAR-OSL dating of a sedimentary section in southern Romania interbedding the Campanian Ignimbrite/Y5 ash layer*" Supervisor: Prof. Dr. Alida Timar-Gabor.

2010: Bachelor's degree in environmental science, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania.

Current positions

2016-present: Scientific researcher III, Environmental Radioactivity and Nuclear Dating Center at the Institute for Interdisciplinary Research in Bio-Nano-Sciences, Babeş-Bolyai University, Cluj-Napoca, Romania.

2023-present: Postdoctoral researcher in European research Council (ERC) Consolidator Grant 101043356, HORIZON EUROPE, „*PROGRESS - Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods*", 2023-2027, awarded to Prof. Alida Timar-Gabor.

Previous positions

2020-2022: Principal Investigator of the project "PRECLUM - *To what extent can uncertainties on luminescence ages be reduced: a field study on the variability of ages obtained on coeval sedimentary samples. UEFISCDI PN-III-P1-1.1-PD-2019-0895". Mentor Prof. Alida Timar-Gabor.*

2016-2020: Postdoctoral researcher in „*INTERTRAP- Integrated dating approach for terrestrial records of past climate using trapped charge methods*", 2016-2021, European Research Council (ERC) Starting Grant 678106, HORIZON 2020, awarded to Prof. Alida Timar-Gabor.

2019-2020: Postdoctoral researcher in the project "*Cave deposits as archives of climate and environmental changes. A Center of Excellence in speleological research*", EEA-RO-NO-2018-0126 lead by. Dr. Silviu Constantin.

2016–2020 (intermittently): Postdoctoral researcher in Premierea H2020 "*Integrated absolute dating approach for terrestrial records of past climate using trapped charge (INTERTRAP)*". UEFISCDI PN-III-P3-3.6-H2020-2016-0015 lead by Prof. Dr. Alida Gabor

2015–2016: Postdoctoral researcher in the project "*Habitat, environment and natural resources in the Lower Danube Basin in pre- and proto-history.*" UEFISCDI PN-II-PT-PCCA-2013-4-1308 lead by Acad. Dr. Alexandru Vulpe.

2011–2014: Assistant researcher in "*Dating the Romanian Part of the European Loess Belt Using Luminescence.*" TE/ CNCS-UEFISCDI PN II-RU-TE-2011-3-0062 lead by Dr. Alida Timar-Gabor.

Supervision of graduate students

Member in the guidance committee of doctoral students (year of graduation given in brackets): Avram Anca (2021), Laura del Valle Villalonga (2021), Tecşa Viorica (2020), Groza Mădălina (2020), Grecu Şerban (currently), Pănescu Vlad (currently), Kelemen Szabolcs (currently). Co-supervisor of 2 bachelor and 4 master`s dissertations.

Reviewing activities

Reviewer in relevant journals in the field of luminescence dating: Quaternary Science Reviews, Radiation Measurements, Quaternary Geochronology, Palaeoecology Palaeoclimatology Palaeogeography, Catena, Geochronometria and Quaternary International.

Memberships of scientific societies

Member of European Geosciences Union (EGU),

Scientific research grants

PI in "PRECLUM - To what extent can uncertainties on luminescence ages be reduced: a field study on the variability of ages obtained on coeval sedimentary samples*" grant,* UEFISCDI PN-III-P1-1.1-PD-2019-0895, 2020-2022.

List of Publications

Book Chapters

Alida Timar-Gabor, Cristian Panaiotu, Daniel Veres, Cristian Necula, **Daniela Constantin**, chapter "The lower Danube loess, new age constraints from luminescence dating, magnetic proxies and isochronous tephra markers" in volume Landform Dynamics and Evolution in Romania, **Springer 2016**, 679-697.
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Articles in indexed journals

1. Timar-Gabor, A., Kabacińska, Z., **Constantin, D.**, Dave, A., Buylaert, J.P., 2023. Reconstructing dust provenance from quartz optically stimulated luminescence (OSL) and electron spin resonance (ESR) signals: Preliminary results on loess from around the world. ***Radiation Physics and Chemistry,*** 111138. https://www.sciencedirect.com/science/article/pii/S0969806X23003833
2. Avram, A., **Constantin, D.**, Hao, Q., Timar-Gabor, A., 2022. Optically stimulated luminescence dating of loess in South-Eastern China using quartz and polymineral fine grains. ***Quaternary Geochronology,*** 67, 101226 https://www.sciencedirect.com/science/article/pii/S1871101421000765
3. **Constantin, D.**, Mason, J., Veres, D., Hambach, U., Panaiotu, C., Zeeden, C., Zhou, L., Marković, S., Gerasimenko, N., Avram, A., Tecsa, V., Groza-Sacaciu, S.M., del Valle Villalonga, L., Begy, R.C., Timar-Gabor, A., 2021. OSL-dating of the Pleistocene-Holocene climatic transition in loess from China, Europe and North America, and evidence for accretionary pedogenesis. ***Earth-Science Reviews,*** 221, 103769. https://www.sciencedirect.com/science/article/pii/S0012825221002701(FI=12.413)
4. Avram, A., **Constantin, D.**, Veres, D., Kelemen, S., Obreht, I., Hambach, U., Marković, S.B., Timar-Gabor, A., 2020. Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia. ***Boreas***, 49 (3), 615-633. https://onlinelibrary.wiley.com/doi/full/10.1111/bor.12442
5. Tecsa, V., Mason, J.A., Johnson, W.C., Miao, X., **Constantin, D.**, Radu, S., Magdas, D.A., Veres, D., Markovic, S.B., Timar-Gabor, A., 2020. Latest Pleistocene to Holocene loess in the central Great Plains: Optically stimulated luminescence dating and multi-proxy analysis of the enders loess section (Nebraska, USA), ***Quaternary Science Reviews,*** 229, 106130. https://www.sciencedirect.com/science/article/pii/S0277379119305967?via%3Dihub

6. **Constantin, D.**,Veres, D., Anechitei-Deacu, V., Groza, S.M., Begy, R., Kelemen, S., Buylaert, J.-P., Panaiotu, C., Hambach, U., Marković, S.B., Gerasimenko, N., Timar-Gabor, A., 2019. Luminescence age constraints on the Pleistocene-Holocene transition recorded in loess sequences across SE Europe. ***Quaternary Geochronology***, 49, 71-77. https://www.sciencedirect.com/science/article/pii/S1871101417302388
7. Timar-Gabor, A., Buylaert, J-P., Guralnik, B., Trandafir-Antohi, O., **Constantin, D.**, Anechitei-Deacu, V., Jain, M., Murray, A.S., Porat, N., Hao, Q., Wintle, A.G., **2017**. On the importance of grain size in luminescence dating using quartz. ***Radiation Measurements***, 106, 464-471. http://www.sciencedirect.com/science/article/pii/S1350448717300446
8. Timar-Gabor, A., **Constantin, D.**, Buylaert J.P., Jain M., Murray A.S., Wintle A., **2015.** Fundamental investigations of natural and laboratory generated SAR dose response curves for quartz in the high dose range. ***Radiation Measurements,*** 81, 150-156. http://www.sciencedirect.com/science/article/pii/S1350448715000141
9. **Constantin, D.**, Buylaert, J.P., Jain M., Murray A.S., Timar-Gabor A., **2015**. Quartz luminescence response to a mixed alpha - beta field: Investigations on Romanian loess. ***Radiation Measurements***, 81,110-115. http://www.sciencedirect.com/science/article/pii/S1350448715000025
10. **Constantin D.**, Camenita A., Panaiotu C., Necula C., Codrea V., Timar-Gabor A., **2015.** Fine and coarse-quartz SAR-OSL dating of Last Glacial loess in Southern Romania. ***Quaternary International,*** 357, 33-43. http://www.sciencedirect.com/science/article/pii/S1040618214005229
11. Timar-Gabor A., **Constantin D.**, Markovic S. B., Jain, M., **2015.** Extending the area of investigation of fine versus coarse quartz optical ages from the Lower Danube to the Carpathian Basin. ***Quaternary International,*** 388, 168-176. http://www.sciencedirect.com/science/article/pii/S104061821400723X
12. **Constantin D.,** Begy R., Vasiliniuc S., Panaiotu C., Necula C., Codrea V., **Timar-Gabor A., 2014**. High resolution OSL dating of the Costineşti section Romania using fine and coarse quartz. ***Quaternary International,*** 334-335, 20-29. http://www.sciencedirect.com/science/article/pii/S1040618213003492
13. Corcea, C., **Constantin, D.**, Anechitei, V., Timar-Gabor A., Filipescu S., **2013**. OSL dating of 63-90 μm quartz extracted from an Eemian (presumably lacustrine) sedimentary section at Floreşti on the Someşu Mic Valley. ***Carpathian Journal of Earth and Environmental Sciences***, 1, 139-145. http://www.ubm.ro/CJEES/

14. Veres D., Lane C., Timar-Gabor A., **Constantin D.**, Szakacs A., Hambach U., Fullig A., Onac B. P., **2013**. The Campanian Ignimbrite tephra layer - a regional stratigraphic marker for the MIS 3 loess deposits of Romania, ***Quaternary International,*** 293, 22-34. http://www.sciencedirect.com/science/article/pii/S1040618212001231
15. **Constantin D.,** Timar-Gabor A., Veres D., Begy R., Cosma C., **2012**. SAR-OSL dating of quartz of different grain sizes extracted from a loess section in southern Romania embedding the Campanian Ignimbrite/Y5 tephra layer, ***Quaternary Geochronology***, 10, 81-86. http://www.sciencedirect.com/science/article/pii/S1871101412000143
16. Timar-Gabor A., Vasiliniuc S., Vandenberghe D., **Constantin D**., Cosma C., Luminescence dating of archaeological materials and sediments in Romania using quartz, **2011.** ***Romanian Reports in Physics***, 63, 929-939. http://www.rrp.infim.ro/

Lecturer Dr. Anca Avram-narrative CV

Committed to educating the next generation of environmental scientists, fostering a passion for sustainable and scientific inquiry in environmental and geological processes

Anca Avram's dedication to the environment has been a driving force in her academic and research journey. She obtained her Bachelor's degree in Environmental Engineering from the Faculty of Environmental Sciences and Engineering and continued her education with a Master's degree at the same institution. Her passion for sustainable practices and environmental research led her to pursue a Ph.D. in Environmental Science, with a specialization in Luminescence dating and Climate change, which she successfully completed in 2021.

During her Ph.D., Anca had the opportunity to explore the academic world further by taking on the role of a teaching assistant. She delivered seminars on Environmental Radioactivity at the undergraduate level, which ignited her passion for teaching. As a result, she currently holds the position of Lecturer at the Faculty of Environmental Science and Engineering at Babes-Bolyai University in Cluj-Napoca. In this role, she imparts knowledge through lectures and seminars on Environmental Radioactivity and Physics.

Anca's research journey began during her master's studies when she joined the Environmental Radioactivity and Nuclear Dating Center, under the guidance of Professor Dr. Alida Timar-Gabor, who also supervised her master's and Ph.D. theses. Her research has primarily focused on assessing the applicability of Optically Stimulated Luminescence dating on various dosimeters extracted from sedimentary deposits worldwide. Her work started with luminescence samples from a sedimentary deposit near Kisiljevo village in Serbia, which formed the basis of her dissertation thesis. Anca also co-authored a research paper titled "Initial quartz OSL and dust mass accumulation rate investigation of the Kisiljevo loess sequence in north-eastern Serbia" (2022, Quaternary International) based on these results.

During her Ph.D., Anca extended her research to include luminescence samples from a loess deposit near Batajnica village in Serbia, resulting in the publication of "Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia" in 2020 in the Boreas journal.

Anca's research endeavors took her to the South Island of New Zealand, where she worked on samples from three different loess profiles. Her contributions resulted in three publications in ISI journals, including "Groundwater erosion of coastal gullies along the Canterbury coast (New Zealand): a rapid and episodic process controlled by rainfall intensity and substrate variability" (2021, Earth Surface Dynamics), "Investigations on the Luminescence Properties of Quartz and Feldspars extracted from

loess in the Canterbury Plains, New Zealand, South Island" (2021, Geochronometria), and "Testing the potential of using fine quartz for dating loess in South Island, New Zealand" (2022, Radiation Measurements). Her work addressed the unique challenges posed by the luminescence properties of quartz from South Island, contributing valuable insights to luminescence dating research.

Anca's dedication to luminescence dating also led her to publish her third scientific paper as a first author, titled "Optically stimulated luminescence dating of loess in South-Eastern China using quartz and polymineral fine grains" (2022, Quaternary Geochronology), which included the first numerical chronology for a loess-paleosol profile from Huai River valley in China.

In 2021, Anca collaborated with her team to collect luminescence data from loess deposits on three continents, resulting in the article "OSL-dating of the Pleistocene-Holocene climatic transition in loess from China, Europe, and North America, and evidence for accretionary pedogenesis" (2021, Earth Science Reviews).

Throughout her doctoral studies, Anca took on the role of supervising and mentoring undergraduate students, guiding them through their bachelor's theses and fostering their academic growth and research capabilities.

Anca Avram's research accomplishments were made possible with the support and funding from research projects such as PN-III-P3-3.6-H2020-2016-0015 and EEA-RO-NO-2018-0126, which played a crucial role in the successful completion of her research endeavors. Her extensive academic and research background has provided her with a deep understanding of luminescence dating's applicability and limitations, as well as its significance in predicting future climatic changes.

Possessing a robust academic and research background, Anca Avram has developed a deep understanding on the applicability and limitation of luminescence dating as well as on geological chronologies that can help us predicting the future climatic changes.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: Avram (born Giurgea) Anca

Date of birth: 11 February 1992

Researcher unique identifier(s) ORCID 0000-0002-6631-311X, Scopus ID 57216885239,

Google Scholar: https://scholar.google.com/citations?user=dRPPYzoAAAAJ&hl=ro

H=4 (since 2019)

Education:

2021: PhD in Environmental Science, Babes-Bolyai University, Cluj-Napoca, supervised by Prof. Dr. Timar-Gabor Alida, PhD thesis: *„Multi-method luminescence dating studies using quartz and feldspars extracted from loess deposits in Europe, Asia and Oceania"*

2015-2017: Master „Environmental quality and energetic sources", Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Master thesis: *„Optically stimulated luminescence dating of an massive loess deposition along the Danube (SE Serbia) using different grain sizes of quartz"*

2011-2015 Bachelor's degree in Environmental Engineer, Babes-Bolyai University.

Current positions:

2022-present: Lecturer, Department of Environmental Analysis and Engineering, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania.

Teaching activities

2017–present: Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Courses and practical exercises in: Environmental Radioactivity, Environmental Physics.

Reviewing activities

Review board of the following journals: Quaternary Geochronology

Attended conference

Luminescence and Electron Spin Resonance Dating Conference (LED) 2021, Online. Poster: Investigation on the luminescence properties of quartz and feldspars extracted from loess in the Canterbury Plains, New Zealand.

UK Luminescence meering, 2019, Roskilde, Denmark. Poster: Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia.

Eurasian Environmental dynamics and humans: Interactions over different time scales, 2019, Belgrade, Serbia. Poster: "Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene at Batajnica, Serbia"

INTAV International Field Conference on Tephrochronology "Tephra hunt in Transylvania", 2018, Romania. Poster "Multi-method luminescence dating of the Batajnica loess section in south of the Carpathian Basin"

Member of projects

2016-2020: PN-III-P3-3.6-H2020-2016-0015

2020-2022: EEA-RO-NO-2018-0126

2022-present: PN-III-P1-1.1-TE-2021-0213

List of Publications

Articles in indexed journals

1. **Avram, A.**, Constantin, D., Veres, D., Kelemen, S., Obreht, I., Hambach, U., Marković, S.B., Timar-Gabor, A., 2020. Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia. Boreas, 49, 615-633. https://doi.org/10.1111/bor.12442
2. Brezenu, D., **Avram, A.**, Micaleff, A, Cinta Panzaru, S., Timar-Gabor A., 2021. Investigations on the luminescence properties of quartz and feldspars extracted from loess in the Canterbury Plains, New Zealand South Island. Geochronometria, 48, 46-60. http://dx.doi.org/10.2478/geochr-2021-0005
3. Micallef, A., Marchis, R., Saadatkhah, N., Clavera-Gispert, R., Pondthai, P., Everett, M. E., **Avram, A.**, Timar-Gabor, A., Cohen, D., Preca Trapani, R., and Weymer, B. A., 2021. Box canyon erosion along the Canterbury coast (New Zealand): A rapid and episodic process controlled by rainfall intensity and substrate variability, Earth Surface Dynamics, 9 (1), 1-18. http://dx.doi.org/10.5194/esurf-9-1-2021

4. Constantin, D., Mason, J.A., Veres, D., Hambach, U., Panaiotu, C., Zeeden, C., Zhou, L., Marković, S.B., Gerasimenko, N., Avram, A., Groza-Sacaciu, S.M., del Valle Villalonga, L., Begy, R., Timar-Gabor, A., 2021. OSL-dating of the Pleistocene-Holocene climatic transition in loess from China, Europe and North America, and evidence for accretionary pedogenesis. Earth-Science Reviews 221, 103769.
http://dx.doi.org/10.1016/j.earscirev.2021.103769

5. Peric, Z., Marković, S., **Avram, A.**, Timar-Gabor, A., Zeeden, C., Nett, J., Fischer, P., Fitzsimmons, K., Gavrilor, M.B., 2022. Initial quartz OSL and dust mass accumulation rate investigation of the Kisiljevo loess sequence in north-eastern Serbia. Quaternary International, 620, 13-23.
https://doi.org/10.1016/j.quaint.2020.10.040

6. Avram, A., Constantin, D., Hao, Q., Timar-Gabor, A., 2022. Optically stimulated luminescence dating of loess in South-Eastern China using qurtz and polymineral fine grains. Quaternary Geochronology 67, 101226.
http://dx.doi.org/10.1016/j.quageo.2021.101226

7. Avram, A., Kabacińska, Z., Micallef, A., Timar-Gabor, A., 2022. Testing the potential of using fine quartz for dating loess in South Island, New Zealand. Radiation Measurements 155, 106788.
http://dx.doi.org/10.1016/j.radmeas.2022.106788

8. Avram, A., Mandroc, M., Constantin, D., Marković, S.B., Timar-Gabor, A., 2021. Optically stimulated luminescence dating of the upper horizon of a Serbian loess-paleosoil sequence using quartz. Studia Universitatis Babes-Bolyai, seria AMBIENTUM 1-2, 5-18.
https://www.doi.org/10.24193/subbambientum.2021.01

Dr. Aditi K Dave-narrative CV

Charting new frontiers in quartz geochronology and provenance: an international journey enriching earth science, paleoclimatology, and archaeology

Dr. Aditi K. Dave is presently a postdoctoral researcher in the European Research Council (ERC) project PROGRESS (Reading Provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods) led by Prof. Alida Timar-Gabor at Babes-Bolyai University, Cluj-Napoca, Romania. She did her B.Sc. and M.Sc. in Chemistry from the University of Delhi, India (2009 -2014). Following which, she pursued an M.Sc. in Archaeological Sciences as a fully-funded Felix Scholar at the University of Oxford (2014-15). After her Masters, Aditi was a visiting scientist (2015-16) at the Luminescence Laboratory in the Physical Research Laboratory (PRL), Ahmedabad India. Post PRL, she moved to Germany and did her PhD in Geology at the Max Planck Institute for Chemistry, Mainz (2017-2021). During her doctoral work, apart from establishing a chronological framework and quantifying the rates of aeolian landscape evolution in Central Asia, Aditi developed a new methodology for characterising the provenance of quartz using defects centres in the quartz crystal lattice. For this work, she was awarded the *Martin Aitken Prize for Fundamental Research* at the 16th International Luminescence and Electron Spin Resonance Dating Conference in 2021. After her PhD, Aditi was a Postdoctoral fellow in the Department of Geosciences at University of Tübingen, Germany (2021-2022), and subsequently moved to Romania in August 2022, where she is currently based.

Aditi has been involved in the field of trapped charge dating (Luminescence and Electron Spin resonance) for the past 9 years and has had the opportunity to work in different parts of the world as well as on different sedimentary archives in the field of geology and archaeology. Her primary research interest lies in understanding the behaviour of luminescence and ESR signals in quartz from rocks and sediments using trapped charge techniques to better understand its application as a proxy for provenance as well as developing absolute chronological records to understand the rate and processes of landscape change over time and space. Over the span of her Masters and PhD, Aditi received numerous awards for her research work: *Nicolas Copernicus award for rising young stars in Luminescence dating* (15th International Luminescence and Electron Spin Resonance Dating Conference), *Best Poster Award* (U.K. Luminescence and Electron Spin Resonance Dating Conference, Copenhagen), *Best Oral Presentation* (German Luminescence and Electron Spin Resonance Dating Conference, Bingen) and *Martin Aitken Prize for Fundamental Research* (16th International Luminescence

and Electron Spin Resonance Dating Conference). To date, Aditi has 11 articles in peer reviewed international Q1 and Q2 journals. Of these, she is the first author on 4, and has co-authored 7 journal articles and has a h-index of 4, with 189 citations.

In her present position in the ERC project-PROGRESS, Aditi's research is focused on investigating luminescence and ESR signals in Quartz extracted from rocks and sediments of different lithologies and sedimentary histories and aims at gaining an insight on the variation of these trapped-charge parameters through time and space, thus, elucidating its importance as provenance indicators. The current research facilities (i.e., Luminescence and ESR laboratories) and the soon-to be available facilities like Cathodoluminescence and Scanning electron microscope as part of the ongoing ERC project at BBU will enable Aditi to extend the frontiers of her current research by combining radiation dosimetry techniques with spectroscopic mineralogical investigations on quartz, which will aid cutting-edge interdisciplinary research across the fields of radiation physics, mineralogy and geology.

In addition to her research pursuits, Aditi has been actively engaged in various scientific organisational activities that promote and foster the development and engagement of early-career researchers (ECR) within the palaeoclimate community. Presently, she serves as steering committee member of the PAGES - Early career network (PAGES-ECN) as well as an organising member of the Landscape live virtual seminar series of the Geomorphology division of the European Geosciences Union (EGU). During her PhD as well as post-doc, Aditi co-organised various international conferences (German Luminescence and Electron spin Resonance Dating Conference in Bingen in 2019) and workshops (ECR Workshop at the Loessfest held in Yanán , China in 2022). Furthermore, post-PhD Aditi has also taught various courses in sedimentology and geochronology as a lecturer and guest-lecturer at the Department of Geosciences, University of Tuebingen, Germany and the Faculty of Environmental Sciences and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania, respectively.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: Dave, Aditi Krishna

Date of birth: 30 June 1991

Researcher unique identifier(s) ORCID 0000-0002-2836-9155, Scopus ID: 57202114992, Google Scholar: https://scholar.google.com/citations?user=KJqt5x4AAAAJ&hl=en

h-index = 4 (since 2019)

Education

2017-2021: PhD in Geology, Max Planck Institute of Chemistry and Johannes Gutenberg University, Mainz, Germany, supervised by Prof. K.E. Fitzsimmons; PhD thesis title: *"Understanding Quaternary aeolian landscape-climate interactions in the piedmonts of Central Asia using luminescence and electron spin resonance techniques"*

2014-2015: M.Sc. Archaeological Sciences, University of Oxford, U.K. Master thesis: *Application and development of luminescence dating techniques for sediments and burnt flints from the palaeolithic site of Riparo Mochi, Italy.*

2012-2014: M.Sc. Chemistry, University of Delhi, India.

2009-2012: B.Sc. (Honours) Chemistry, Miranda House College, University of Delhi, India.

Current Position: 2022-Present: Postdoctoral researcher in ERC Project - PROGRESS, Babes-Bolyai University, Cluj-Napoca, Romania.

Previous Position(s): 2021-2022 Postdoctoral researcher, Department of Geosciences, University of Tuebingen, Germany. **2015-2016**: Visiting scientist, Physical Research Laboratory, Ahmedabad, India.

Awards and Achievements

2024: Award for Outstanding paper by an Early-career researcher (ECR) in Journal of Quaternary Science (Wiley) in 2023 *titled, "The patchwork loess of Central Asia: Implications for interpreting aeolian dynamics and past climate circulation in piedmont regions".* **2021:** Martin Aitken prize for Fundamental research (best Oral presentation) at the 16th International Luminescence and Electron Spin Resonance Dating (LED) Conference. **2020:** Best Oral Presentation award at the German LED Conference, Leipzig **2019**: Best Poster award at the

U.K. LED Conference, Copenhagen. **2017:** Nicolas Copernicus award for rising young stars in luminescence dating at the 15th International LED Conference, Cape town.

Teaching activities

2021-2022: Lecturer at the Department of Geosciences, University of Tuebingen, Germany. **2023 – Present**: Guest Lecturer at the Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania.

Organisational activities

2022-Present: Organising member of the Landscape Live Seminar Series of the Geomorphology Division of the European Geosciences Union (EGU). **2023-Present**: Steering Committee member of Past Global Changes (PAGES) - Early Career Network (ECN). **2022:** Co-organiser of the ECR Workshop at the Loessfest in Yan'an, China **2019:** Co-organiser of the German luminescence and Electron Spin resonance Dating Conference in Bingen Germany.

Reviewing activities

Reviewer for the following Journals: Quaternary Geochronology, Catena, Frontiers in Earth Science and Palaeogeography, Palaeoclimatology, Palaeoecology

List of publications:

Articles in indexed journals:

1. Li, G., Yan,Z., Song,Y., Fitzsimmons,K.E., Yi,S., Kang,S., Chongyi E., Stevens,T., Lai,Z., **Dave, A.K.,** Chen,C., Deng,Y., Yang,H., Zhang, X., Qin, C., Zhao, Q., Buylaert, J-P., Lu,T., Wang, Y., Liu, X., Ling, Z., Chang,Q., Wei,H., Wang, X. 2024. A comprehensive dataset of luminescence chronologies and environmental proxy indices of loess-paleosol deposits across Asia. ***npj Climate and Atmospheric Science*** 7 (7). https://doi.org/10.1038/s41612-023-00555-4
2. Timar-Gabor, A., Kabacińska, Z., Constantin,D., **Dave, A.K.**, Buylaert, J-P. 2023. Reconstructing dust provenance from quartz optically stimulated luminescence (OSL) and electron spin resonance (ESR) signals: Preliminary results on loess from around the world. ***Radiation Physics and Chemistry***. https://doi.org/10.1016/j.radphyschem.2023.111138.
3. **Dave, A. K.,** Lisa, L., Scardia, G., Nigmatova, S., and Fitzsimmons, K. E. 2023. The patchwork loess of Central Asia: Implications for interpreting aeolian dynamics and

past climate circulation in piedmont regions. ***Journal of Quaternary Science***. https://doi.org/10.1002/jqs.3493

4. Li, Y., Song, Y., Fitzsimmons, K.E., **Dave, A.K.**, Liu, Y., Zong, X., Sun, H., Liu, H., Orozbaev, R. 2022. Investigating potential links between fine-grained components in loess and westerly air-flow: evidence from East and Central Asia. ***Frontiers in Earth Science*** 10:901629. https://doi.org/10.3389/feart.2022.901629
5. Frouin, M., Douka., K, **Dave, A.K.**, Schwenninger, J-L., Mercier, N., Murray, A.S., Santaniello, F., Boschian, G., Grimaldi, S., Higham, T. 2022. A refined chronology for the Middle and the early Upper Palaeolithic at Riparo Mochi (Liguria, Italy). ***Journal of Human Evolution*** (169), 103211. https://doi.org/10.1016/j.jhevol.2022.103211
6. **Dave, A. K.**, Timar-Gabor, A., Kabacińska, Z., Scardia, G., Safaraliev, N., Nigmatova, S., Fitzsimmons, K. E. 2022. A novel proxy for tracking the provenance of dust based on paired E1'-peroxy paramagnetic defect centers in fine-grained quartz. ***Geophysical Research Letters***, 49, e2021GL095007. https://doi.org/10.1029/2021GL095007.
7. **Dave, A. K.**, Timar-Gabor, A., Scardia, G., Safaraliev, N., Fitzsimmons, K. E. 2022. Variation in Luminescence Characteristics and Paramagnetic Defect Centres in Fine-Grained Quartz From a Loess-Palaeosol Sequence in Tajikistan: Implications for Provenance Studies in Aeolian Environments. ***Frontiers in Earth Science***. 10:835281. doi: 10.3389/feart.2022.835281
8. Fitzsimmons, K.E.; Perić, Z.; Nowatzki, M.; Lindauer, S.; Vinnepand, M.; Prud'homme, C.; **Dave, A.K.**; Vött, A.; Fischer, P. 2021. Luminescence Sensitivity of Rhine Valley Loess: Indicators of Source Variability? ***Quaternary*** 5 (1). https://doi.org/10.3390/quat5010001
9. Fitzsimmons, K.E., Nowatski, M., **Dave, A.K.**, Harder, H. 2020. Intersections between wind regimes, topography and sediment supply: Perspectives from aeolian landforms in Central Asia. ***Palaeogeography, Palaeoclimatology, Palaeoecology*** 540, 109-531. https://doi.org/10.1016/j.palaeo.2019.109531
10. **Dave, A.K.**, Courty, M.A., Fitzsimmons, K.E., Singhvi, A.K. 2019. Revisiting the contemporaneity of a mighty river and the Harappans: Archaeological, stratigraphic and chronometric constraints. ***Quaternary Geochronology*** 49, 230-235. https://doi.org/10.1016/j.quageo.2018.05.002

11. Schaetzl, R.J., Bettis, E.A., Crouvi, O., Fitzsimmons, K.E., Grimley, D.A., Hambach, U., Lehmkuhl, F., Marković, S.B., Mason, J.A., Owczarek, P., Roberts, H.M., Rousseau, D.-D., Stevens, T., Vandenberghe, J., Zarate, M., Veres, D., Yang, S., Zech, M., Conroy, J.L., Dave, A.K., Faust, D., Hao, Q., Obreht, I., Prud'homme, C., Smalley, I., Tripaldi, A., Zeeden, C., Zech, R. 2018. Approaches and challenges to the study of loess. Quaternary Research (89), 563-618.
doi:10.1017/qua.2018.15

Ph.D. student Şerban Constantin Grecu -narrative CV

From indoor radon to electron microscopy of rocks: Unearthing New Horizons in Environmental Radioactivity

Şerban-Constantin Grecu is currently a Ph.D. student under the supervision of Prof. Dr. Alida Timar-Gabor. He always had a keen interest in figuring out how things work in the natural world.

Starting with a bachelor on Environmental Engineering, during the undergraduate period, his academic trajectory underwent an introspective shift, delving into the insidious implications of radon infiltration into residential spaces. He actively engaged in multiple projects regarding the pervasive issue of residential radon. The initiation into research materialized with the collaboration with the ''Constantin Cosma'' Radon Laboratory (LiRaCC Laboratory) within the Faculty of Environmental Science and Engineering, Cluj-Napoca. The first notable project "Smart systems for population safety through radon exposure control and residential energy efficiency optimization (SMART-RAD-EN)" laid his foundation in the research field. This activity focused on the processing of data obtained through the ICA prototype, a device developed in the project. In this regard, his contribution allowed the rapid processing of an impressive volume of data using the R progamming language. The results of this collaboration have been capitalized through the publication of an ISI article in the *Romanian Journal of Physics*. Eager to expand his horizons, in July 2019, Şerban attended the "Radioecology, Radiometric Dating, Nuclear Measurements" Summer School, held in Veszprem, Hungary. During the academic year 2019-2020, he received a special scholarship from Babeş-Bolyai University for scientific activities, allowing to continue his research and present at the VII. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection, held in Veszprem, Hungary, where he obtained the Young Profession Award. The culmination of this scholarship was the publication of an article on radon temporal correction factors in *Scientific Reports*. His master's research focused on time series analysis of indoor radon concentration, contributing to the MoLiAIR project, aiming to increase accuracy in estimating annual radon concentration. Driven by the motivation of applying relatively new artificial intelligence techniques in the analysis of radon concentration, his dissertation delved into machine learning anomaly detection in indoor radon concentration time series.

Driven by desire for knowledge, Şerban recently joined a dynamic and professional team of the Centre for Environmental Radioactivity and Nuclear Dating at the Institute of Bio Nano Sciences, Cluj-Napoca and as a Ph.D. student, he is studying luminescence dating methods and electron microscopy under the guidance of Prof. Dr. Alida-Timar Gabor. Eager to contribute to the advancement of scientific knowledge, his journey continues with a commitment to excellence and continuous learning.

Annex-Career timeline and listed achievements

Personal information:

Family name, First name: **Grecu Şerban Constantin**

Date of birth: 28 April 1998

Researcher unique identifier(s) ORCID 0009-0001-4449-9144, Scopus ID 57215593567, Google Scholar: https://scholar.google.com/citations?user=I-tEQ70AAAAJ

Education:

2023 - present: Doctoral School "Environmental Science" - Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca

2021 - 2023: Master ''Risk assessment and environmental safety" - Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Master thesis: ''Anomaly detection using time series analysis in the variation of Radon concentration''

2017- 2021: Bachelor Degree Certificate in Environmental Engineering, Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca. Bachelor thesis: ''Impact of physical factors on indoor radon concentration with application in determination of seasonal correction factors''

Current positions

2023 – present: Research assistant, at Babeş Bolyai University Cluj-Napoca, Romania, within ERC-COG-PROGRESS-101043356, Reading provenance from ubiquitous quartz: understanding the changes occurring in its lattice defects in its journey in time and space by physical methods

2023-present: Teaching assistant, Faculty of Environmental Science and Engineering, Babeş Bolyai University, Cluj-Napoca, Romania.

2022 – present: Research assistant, at Babeş Bolyai University Cluj-Napoca, Romania, within MoLiAIR- Increasing the accuracy in estimating the annual radon concentration by analysing the parameters with impact in temporal variations. Project PN-III-P1-1.1-TE-2021-0249 (https://moliair.granturi.ubbcluj.ro)

Previous positions: 2019 – 2020, Research Technician at Babeş Bolyai University, Cluj-Napoca, Romania, within SMART-RAD-EN - Intelligent systems for public safety by controlling and reducing radon exposure linked to the optimization of energy efficiency of dwellings in major urban agglomerations in Romania. Project POC Contract No. 22/01.09.2016, ID P_37_229, MySmis code 103427 (www.smartradon.ro).

Scholarships and awards

Scholarships: 2019-2020: Scholarship for scientific activity- Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca

International awards: 2020: Young Profession Award – at VII. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection (VII. TREICEP) Conference, Institute of Radiochemistry and Radioecology, University of Pannonia, Veszprém, Hungary

List of Publications

Articles in indexed journals

1. Dicu, T., Burghele, B.D., Botoş, M., Cucoş, A., Dobrei, G., Florică, Ş., **Grecu, Ş.**, Lupulescu, A., Papp, I., Szacsvai, K., & Sainz, C. **2021.** A new approach to radon temporal correction factor based on active environmental monitoring devices. ***Scientific Reports*** 11, 9925. https://doi.org/10.1038/s41598-021-88904-2, IF (2023): 4.996, Q2 AIS 2022
2. Tunyagi, A., Dicu, T., Cucoş, A., Burghele, B.D., Dobrei, G., Lupulescu, A., Moldovan, M., Niță, D., Papp, B., Pap, I., Szacsvai, K., Ţenter, A., Beldean-Galea M.S., Anton, M., **Grecu, Ş.**, Cicoloa, L., Milos, R., Botos, M.L., Chiorean, C.G., Catalina, T., Istrate, M.A., Sainz, C. **2020.** An Innovative System for Monitoring Radon and Indoor Air Quality. ***Romanian Journal of Physics*** 65, 803. https://rjp.nipne.ro/2020_65_1-2/RomJPhys.65.803.pdf, IF (2023): 1.662, Q4 AIS 2022

Conferences and seminars

1. **2023** - 16th INTERNATIONAL WORKSHOP GARRM (on the GEOLOGICAL ASPECTS OF RADON RISK MAPPING), Prague, Czech Republic
2. **2023** - ENVIRONMENT & PROGRESS Symposium - Sustainable Development: Approaches and Solutions for Resilient Communities, Faculty of Environmental Science and Engineering, Babes Bolyai University, Cluj-Napoca, Romania
3. **2020** - Terrestrial Radioisotopes in Environment International Conference on Environmental Protection (VII. TREICEP) Conference, Institute of Radiochemistry and Radioecology, University of Pannonia, Veszprém, Hungary,

MSc Student Eng. Savin Codrin-Fabian-narrative CV

Passionate student: From Radiological Assessment to Precision Nuclear Dating for a better understanding of the global carbon cycle

The debut of Savin Codrin-Fabian's in scientific endeavors is outlined by his adherence to the research collective of the Centre of Environmental Radioactivity and Nuclear Dating (Babeș-Bolyai University, Cluj-Napoca). Throughout his undergraduate studies at the Faculty of Environmental Science and Engineering, Codrin was engaged in scientific activities, as part of his collaboration with the Nuclear Spectrometry Laboratory. In 2020, under the guidance of Associate Prof. Dr. Begy Robert-Csaba, he submitted the research project entitled" Investigating *the Radioactivity of Mineral Waters in the Northeastern Carpathians and Determining the Radiation Dose Resulting from Their Consumption*" and won a Special Scholarship for Scientific Activity awarded by Babeș-Bolyai University. Throughout the duration of the scholarship, Savin Codrin-Fabian co-authored two scientific papers published in ISI-indexed journals and disseminated the results at two international scientific conferences. He gained the status of Member of the College of Academic Excellence 'Next Generation' within the Institute of Advanced Studies in Science and Technology (STAR).

Currently, Savin Codrin-Fabian holds the position of research technician, employed since 2022 by Babeș-Bolyai University, within the research project *PN-III-P1-1.1-TE-2021-0213* aimed at stimulating young independent teams, titled "*Carbon sinks or sources: assessing the impact of climate change and anthropic activities on peat development in SE-Europe over the last 150 years*" while pursuing a master's level degree at the Faculty of Environmental Science and Engineering.

In the course of the last four years, Savin Codrin-Fabian achieved tangible results as an outcome of his scientific involvement and dedication to the field of natural radioactivity, publishing a total number of eight research articles in ISI-indexed international journals and participating in numerous scientific conferences. The results of his studies hold relevance in the actual global context, depicting the mechanisms and impacts of both natural processes and anthropic activities from an environmental perspective. The recent transition in the focus of his scientific activities towards the study of retrospective peatland carbon dynamics is facilitating a better understanding of the global carbon cycle and the potential of carbon sinks, both fundamental in the understanding and mitigation of climate change and the impact of greenhouse gasses. Moreover, the radiological investigations performed on potable water sources at the national level have implications for public health safety.

Savin Codrin-Fabian future academic ambitions include pursuing a Ph.D. program in natural sciences, advancing his knowledge in the field, to upscale the significance of his contributions in the area of scientific research.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: **Savin Codrin-Fabian**

Date of birth: 24 November 1999

Researcher unique identifier(s) ORCID 0009-0002-4707-9417, Scopus ID 57224781513,

Google Scholar: https://scholar.google.com/citations?user=sZgl5oUAAAAJ&hl=en

H-index = 2 (since 2019)

Education

2022 (ongoing) Master of Engineering degree in Sustainable Development and Environmental Management, Faculty of Environmental Science and Engineering, Babeș-Bolyai University

2018 – 2022 Bachelor of Engineering degree in Environmental Engineering, Faculty of Environmental Science and Engineering, Babeș-Bolyai University

Current positions

2022 (ongoing) Research Technician, Faculty of Environmental Science and Engineering, Babeș-Bolyai University, within the PN-III-P1-1.1-TE-2021-0213 research project for stimulating young independent teams

Fellowships and awards

Fellowships: 2023 - Erasmus+ Staff Training Mobility at University of Pannonia, Veszprem, Hungary

Awards: 2021 - Diploma of Excellence for Student Scientific Research, issued by the Centre for the Management of Scientific Research, Babeș-Bolyai University

Memberships of scientific societies

2023 - Member of European Radon Association (*ERA*) membership no. 549.923.484

2020 - Member of Babeș-Bolyai University Student Fellowship - College of Academic Excellence & "Next Generation" Virtual College of Excellence

List of Publications

Articles in indexed journals

Begy, R.-Cs., **Savin, C.-F.**, Korponai, J., Magyari, E., & Kovács, T. (2024). Investigation of the last two centuries sedimentation dynamics in high-altitude lakes of Southern Carpathians, Romania. *Scientific Reports*, *14*(1). https://doi.org/10.1038/s41598-024-51812-2

Kelemen, S., **Savin, C.-F.**, Timar-Gabor, A., & Begy, R.-C. (2023). A comparative study on digestion methods for ^{210}Po determinations by Alpha Spectrometry on peat bog samples. *Journal of Radioanalytical and Nuclear Chemistry* https://doi.org/10.1007/s10967-023-09157-z

Begy, R-Cs., **Savin, C.-F.**, & Ruskál, A. (2023). Recent carbon sequestration dynamics in four temperate se European peatlands using 210pb dating. *Journal of Environmental Radioactivity*, *264*, 107208. https://doi.org/10.1016/j.jenvrad.2023.107208

Savin, C. F., Forray, F. L., Tănăselia, C., & Begy, R.-Cs. (2023). Radiological assessment of carbonated spring waters in regard to the lithological characteristics of Harghita County, Romania. *The European Physical Journal Special Topics*, *232*(10), 1563–1581. https://doi.org/10.1140/epjs/s11734-023-00879-5

Begy, Robert-Cs., **Savin, C.-F.**, Süle, D. K., & Giagias, E. (2023). Radiological Survey of Geothermal Water Resources in Romania and dose estimation from their use in balneotherapy. *The European Physical Journal Special Topics*, *232*(10), 1595–1605. https://doi.org/10.1140/epjs/s11734-023-00883-9

Begy, Robert-Csaba, **Savin, C.-F.**, & Timar-Gabor, A. (2022). Correction of the effects of carbon dioxide and hydrogen sulfide on electrostatic cell monitors measurements of radon in water. *Journal of Environmental Chemical Engineering*, *10*(1), 107040. https://doi.org/10.1016/j.jece.2021.107040

Begy, R.-Cs., **Savin, C.-F.**, Süle, D.-K., Nuhanovic, M., Giagias, E., & Kovács, T. (2022). Radiological investigation of natural carbonated spring waters from Eastern Carpathians, Romania. *Journal of Radioanalytical and Nuclear Chemistry*, *331*(3), 1439–1450. https://doi.org/10.1007/s10967-022-08195-3

Begy, Robert-Csaba, **Savin, C. F.**, Kelemen, S., Veres, D., Muntean, O.-L., Malos, C. V., & Kovacs, T. (2021). Investigation of the effect of anthropogenic land use on the Pănăzii Lake (Romania) catchment area using CS-137 and PB-210 radionuclides. *PLOS ONE*, *16*(6). https://doi.org/10.1371/journal.pone.0251603

Dr. Monica Dolha-narrative CV

Back in the realm of science, serving as a laboratory technician: overjoyed to rejoin a dynamic research team and take part in the world of scientific discovery.

Monica Dolha is a laboratory technician in the Centre of Environmental Radioactivity and Nuclear Dating within the Interdisciplinary Research Institute on Bio-Nano-Sciences of Babeş-Bolyai University (BBU), Cluj-Napoca, Romania. She did her bachelor's degree and a master's degree in environmental sciences at the Faculty of Environmental Science and Engineering at Babeş-Bolyai University (BBU), Cluj-Napoca, Romania. Following which, she pursued her PhD in Environmental Sciences at BBU and defended her PhD in 2016, titled "Thermoluminescence dosimetry applied in environmental radioactivity monitoring". Her PhD thesis developed a reliable dosimetric system to implement monitoring activities concerning environmental radioactivity in Romania. Dr. Dolha's research has been published in peer-reviewed journals and has made a significant contribution to the field of environmental radiation dosimetry in Romania.

From 2016 to 2023, Dr. Dolha took some time away on maternity leave and for parental responsibilities. In July 2023, she joined as a laboratory technician in the Centre of Environmental Radioactivity and Nuclear Dating. Her present work is aimed at physical and chemical preparation of samples in the laboratory as well as guiding students with their laboratory-related work.

Annex- Career timeline and listed achievements

Personal Information

Family name, First name: **Dolha Monica**

Date of birth: 24 May 1986

Education

2016: PhD in Enviromental Science, Babeş-Bolyai University, Cluj-Napoca, Romania, supervised by Prof. Dr. Constantin Cosma; PhD thesis title: *„Thermoluminescence dosimetry applied in environmental radioactivity monitoring".*

2009 - 2011: Master " Environmental quality and energy sources", Faculty of Environmental Science and Engineering, Babeş-Bolyai University, Cluj-Napoca, Romania. Master thesis: "*Applications of thermoluminescence dosimetry in medical area*"

2005 - 2010: Bachelor's degree in environmental engineering, Faculty of Environmental Science and Engineering, BBU.

Current position

2023-present: Laboratory technician, Interdisciplinary Research Institute on Bio-Nano-Sciences, Babeş-Bolyai University, Cluj-Napoca, Romania.

List of Publications

Book Chapters

Zeciu-Dolha M., A.R. Paşcu, Timar-Gabor A., capitol „Environmental Dosimetry" in „ Thermoluminescence dosimetry (TL) and optically stimulated dosimetry (OSL): applications in environmental studies", Presa Universitară Clujeană Publishing, 2013, pag.89-130.

Zeciu-Dolha M., Timar-Gabor A., capitol „Applications of thermoluminescence and optically stimulated luminescence in medical dosimetry" in „Thermoluminescence dosimetry (TL) and optically stimulated dosimetry (OSL): applications in environmental studies", Presa Universitară Clujeană Publishing, 2013, pag.131-156.

Timar-Gabor A., **Zeciu-Dolha M.**, Paşcu A.R., capitol „Thermoluminescence and optically stimulated luminescence dosimetry principles" in „Thermoluminescence dosimetry (TL) and optically stimulated dosimetry (OSL): applications in environmental studies", Presa Universitară Clujeană Publishing, 2013, pag.39-88.

A.R. Paşcu, Timar-Gabor A., Trandafir O., **Zeciu-Dolha M.**, „Retrospective accident dosimetry" in „Thermoluminescence dosimetry (TL) and optically stimulated dosimetry (OSL): applications in environmental studies", Presa Universitară Clujeană Publishing, 2013, pag.157-227.

Articles in indexed journals

1. **Dolha, M.,** Timar-Gabor, A., Dicu, T., Cosma, C., **2016.** Measurements of terrestrial gamma dose rates and radon concentrations from indoor air and water in Transylvania region. ***Romanian Reports in Physics*, 69**, 701. http://www.rrp.infim.ro/IP/A153.pdf
2. **Dolha M.,** Timar-Gabor A., Dicu T., Begy R., Anton, M., Cosma C., **2014.** A high resolution map of gamma dose rates in Cluj County, Romania using LiF: Mg, Cu, P detectors. ***Radiation Protection Dosimetry***, 162, 1-2, 14-19
3. **Zeciu-Dolha M.**, Timar-Gabor A., Camenita A., Costin D., Cosma C, **2013**. Gamma background measurements by TL method: applications in locations with varied geological background. ***Carpathian Journal of Earth and Environmental Sciences***, 8(4), 109-114. http://www.ubm.ro/CJEES/
4. Paşcu A.R., Vasiliniuc, S., **Zeciu-Dolha M.**, Timar-Gabor A., **2013.** The potential of luminescence signals from electronic components for accident dosimetry. ***Radiation Measurements***, 56, 384-388. http://www.sciencedirect.com/science/article/pii/S1350448713001455

Anexa nr. 5 – Declarație consimțământ privind prelucrarea datelor cu caracter personal*

Subsemnata **Gabor Alida Iulia**, având calitatea de *lider de echipă*, declar că:

- Am fost informat(ă) cu privire la prevederile Regulamentului (UE) 679/26 aprilie 2016 privind protecția persoanelor fizice în ceea ce privește prelucrarea datelor cu caracter personal și privind libera circulație a acestor date.
- Am fost informat(ă) că beneficiez de dreptul de acces, de intervenție asupra datelor mele și dreptul de a nu fi supus unei decizii individuale.
- Am fost informat(ă) că datele cu caracter personal urmează să fie prelucrate și stocate în cadrul Ministerului Cercetării, Inovării și Digitalizării.
- Am fost informat(ă) că prelucrarea datelor mele cu caracter personal este necesară în vederea obligațiilor legale ce îi revin Ministerului Cercetării, Inovării și Digitalizării în cadrul Galei Cercetării Românești, precum și în scopul intereselor și drepturilor ce îmi revin, conform Regulamentului Galei.
- Am fost informat(ă) că datele mele cu caracter personal sunt comunicate autorităților publice, precum și altor instituții abilitate (Ex.: ANAF, ANFP, ITM, ANI, la solicitarea instanțelor judecătorești sau organelor de cercetare penală, etc.) sau parteneri pentru promovarea Galei.
- Am fost informat(ă) că în scopul prelucrării exacte a datelor mele cu caracter personal, am obligația de a aduce la cunoștința Ministerului Cercetării, Inovării și Digitalizării, orice modificare survenită asupra datelor mele personale.
- Am fost informat(ă) că am dreptul să îmi retrag consimțământul în orice moment printr-o cerere scrisă, întemeiată, datată și semnată, depusă la sediul Ministerului Cercetării, Inovării și Digitalizării, exceptând cazul în care prelucrarea datelor mele cu caracter personal este necesară în legătură cu procesul de selecție din cadrul Galei.

În consecință, îmi dau consimțământul pentru prelucrarea, transmiterea și stocarea datelor cu caracter personal în cadrul Ministerului Cercetării, Inovării și Digitalizării.

Lider de echipă

Nume și prenume:Gabor Alida Iulia

Semnătura

Data: 29.01.2024