

**APPLICATION FORM
FOR ROMANIAN RESEARCH GALA 2024**

1. Candidate

Family name: Cormos

First name: Calin-Cristian

PhD since: 2004

Position: Professor habilitated

Institution: Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering,
Chemical Engineering Department, Cluj-Napoca

Mobile phone:

Email:

2. Romanian Research Gala edition: 2024

3. Award and category: Engineering sciences - "Henri Coanda" award, Research team

4. Team leader: Yes

5. Members of the research team:

Associate Professor PhD Eng. Letitia Petrescu

PhD since: 2008

Professor PhD Ana-Maria Cormos

PhD since: 2005

Associate Professor PhD Eng. Simion Dragan

PhD since: 2002

6. Description of the most important scientific achievements in the last 5 years

A factual list of the main candidate (Prof. Calin-Cristian Cormos) and his research team scientific achievements is provided below indicating the most relevant contributions to the advanced developments in inter-disciplinary areas which involve various key engineering sciences: chemical engineering, thermal and power engineering, environmental engineering and information technology.

- Relevant scientific and research activity of above-mentioned research team in the field of decarbonized energy conversion and storage systems integrated with the Carbon Capture, Utilization and storage (CCUS) technologies which is fully demonstrated by the factual list of achievements mentioned below. In this respect, the research team coordinated by Prof. Calin-Cristian Cormos have a fruitful activity devoted to techno-economic and environmental evaluations (using Life Cycle Assessment - LCA) of innovative decarbonized energy conversion systems based on fossil and renewable fuels using various technologies such as combustion, gasification, reforming etc. with an in-depth consideration of chemical reaction engineering aspects for homogenous & heterogeneous systems. The evaluated energy conversion systems integrated with the CCUS technologies were assessed based on state-of-the-art experimental methods as well as advanced numerical (computational) methods for an overall analysis in view of large-scale deployment into energy-intensive industrial sectors decarbonization (e.g., heat & power, chemistry, metallurgy, cement etc.);

- Development, by the research group lead by Prof. Calin-Cristian Cormos, of a state-of-the-art and unique experimental testing laboratory in the field of innovative energy conversion systems with carbon capture and utilization by reactive gas-liquid, gas-liquid-solid and gas-solid methods. In this respect, various experimental thermo-chemical kits (operated in packed bed, bubbling fluidized bed and circulating fluidized bed conditions) were build and extensively used to assess the chemical and calcium looping technologies in term of oxygen carrier / sorbent experimental testing, fuel conversion rate, kinetic determinations, hydrodynamic aspects, assessment of carbon capture rate, reactor design, optimization of process operating parameters, process integration aspects etc. The chemical / calcium looping experimental kits have thermal size of 4 to 12 kW being able to be operated at temperatures up to 1100°C. The associated online gas analyzer and gas-chromatograph are used to monitor the gaseous stream compositions. All thermo-chemical equipment's are fully monitored and controlled by computer using dedicated SCADA applications. For illustrative purposes, Figure 1 presents the chemical / calcium looping units developed at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering by Prof. Calin-Cristian Cormos and his research team using financial resources from national and international projects of his research group;

- Experimental testing and validation at a Technology Readiness (TRL) level of 4 of the Calcium Looping (CaL) technology to be integrated in a post-combustion CO₂ capture arrangement for various energy-intensive industrial applications (e.g., combustion-based heat and power

generation, cement production). The experimental validation of calcium looping technology was done in a experimental - demonstrative project (PED): *Validation of innovative energy efficient calcium looping technology for decarbonization of fossil fuel-intensive industrial applications*, PN-III-P2-2.1-PED-2019-0181 together with University Politehnica Bucharest. The developed calcium looping technology is now fully validated and characterized at a laboratory level of 12 kW thermal duty (for carbonation and calcination reactors) being ready for scale-up to a relevant pilot size (up to 1 MW) in cooperation with interested companies from the energy, cement and metallurgy sectors;



Figure 1. Chemical and calcium looping experimental units developed at Babes-Bolyai University

- Prof. Calin-Cristian Cormos published 230 scientific articles in overall activity with 3740 citations (3234 without auto-citations) and 37 (32 without auto-citations) Hirsch index in prestigious high ISI ranked international journals devoted to energy conversion with carbon capture, utilization and storage technologies. In the last 5 years (since 2019), Prof. Calin-Cristian Cormos published more than 70 scientific articles with 2178 citations (1987 without auto-citations). A significant part of the articles published in ISI journals have Prof. Calin-Cristian Cormos as main (sole) author which illustrates the independent researcher activity and its international visibility. Also, it worth mentioning that most of articles published in international ISI journals are situated in the top 50% of all journals in the field (Q1 and Q2 zones). The published articles in the last 18 years are devoted to

advanced energy conversion and storage systems and carbon capture, utilization and storage technologies. For additional details, relevant international scientific databases can be used:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=15071572300>;

ORCID: <https://orcid.org/0000-0003-1215-1167>;

Research ID: <https://publons.com/researcher/2442147/calin-cristian-cormos/>;

Google Scholar: <https://scholar.google.com/citations?user=EWBAe98AAAAJ&hl=en>.

- Participation as coordinator or responsible for Babes-Bolyai University to many national and international research projects in the field of energy conversion processes with carbon capture, utilization and storage (CCUS). As illustrative examples, one can mention here Horizon 2020 / Europe research projects e.g., „CaLby2030 - Calcium looping to capture CO₂ from industrial processes by 2030” and „SEWGS - Technology platform for cost effective CO₂ reduction in the iron & steel industry”; ERANET ACT research projects e.g., „3D-Caps: Three-dimensional printed capture materials for productivity step-change”; Romania - Switzerland research project „Advanced thermo-chemical looping cycles for the poly-generation of decarbonised energy vectors: Material synthesis and characterisation, process modelling and life cycle analysis” etc. All above mentioned projects show significant international visibility of Prof. Calin-Cristian Cormos and his research team;

- Research stages and scientific presentations to prestigious universities / research institutes in the field of energy conversion systems with carbon capture, utilization and storage (ETH Zurich, Switzerland; European Commission, Joint Research Centre, Institute for Energy, The Netherlands; Sotacarbo, Sardinia, Italy; Aalto University, Helsinki, Finland; Liege University, Belgium etc.);

- Recognition of the significant scientific contributions and achievements as well as the international visibility of Prof. Calin-Cristian Cormos and his research team is certified by followings:

(i) High number of citations and international visibility certified for instance by recent published bibliographic articles in highly visible journals e.g.: D. Casaban, E. Tsalaporta, *The impact of direct air capture during the last two decades: A bibliometric analysis of the scientific research Part II*, Sustainable Chemistry for Climate Action, Volume 2, 2023, 100021, <https://doi.org/10.1016/j.scca.2023.100021>; M. Nawaz, H. Suleman, A.S. Maulud, *Carbon capture and utilization: A bibliometric analysis from 2007 - 2021*, Energies, Volume 15, 2022, 6611, <https://doi.org/10.3390/en15186611> and H. Li, H.D. Jiang, B. Yang, H. Liao, *An analysis of research hotspots and modeling techniques on carbon capture and storage*, Science of the Total Environment, Volume 687, 2019, 687-701, <https://doi.org/10.1016/j.scitotenv.2019.06.013>) which put Babes-Bolyai University on an honorable 7th place in the world as most productive research institutes in the field of carbon capture and storage and Prof. Calin-Cristian Cormos as 1st / 2nd in the top of most productive authors (based on articles, citations and H-index) in field of carbon capture and storage. In addition to prove the relevant high-level international visibility, Prof. Calin-Cristian Cormos is

present in top 2% most cited scientists in the world according to Stanford - Elsevier analysis, for the last years 2020, 2021, 2022, 2023 (<https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6>);

(ii) Expert and project evaluator for various national and international organizations: UEFISCDI, Romania; Energy and carbon capture and storage expert, European Commission, DG Joint Research Centre, Institute for Energy; IEA Clean Coal Center; FP7 / Horizon 2020 / Horizon Europe; National Science Center, Poland; Bulgarian National Science Fund, Bulgaria; National Center of Science and Technology, Kazakhstan; Technology Agency of the Czech Republic etc.;

(iii) Scientific referent for highly international visible ISI journals: Renewable and Sustainable Energy Reviews; Journal of CO₂ Utilization; Energy; Applied Energy; International Journal of Hydrogen Energy; International Journal of Greenhouse Gas Control; Fuel Processing Technology; Fuel; Journal of Cleaner Production; Applied Thermal Engineering; Energy Conversion and Management; Industrial & Engineering Chemistry Research; Energy & Fuels; Membranes etc.;

(vi) Member of editorial board for international ISI-ranked journals e.g., Process Integration and Optimization for Sustainability (<https://link.springer.com/journal/41660>), Clean Technologies and Environmental Policy (<https://link.springer.com/journal/10098>), Journal of Sustainable Mining (<https://jsm.gig.eu/journal-of-sustainable-mining/>), Revista de Chimie (<https://revistadechimie.ro/>). In addition, Prof. Calin-Cristian Cormos is member of the scientific committees for several international conferences such as: Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES); European Symposium on Computer Aided Process Engineering (ESCAPE); Clean Coal Technologies (CCT); International Conference on Energy and Environment (CIEM); International Symposium of Chemical Engineering and Materials (SICHEM) etc.;

(v) Invitations to prestigious universities / research institutes: ETH Zurich, Switzerland (2004); Aalto University, School of Engineering, Helsinki, Finland to deliver a course related to the gasification and Carbon Capture and Storage (CCS) technologies (2011); International Sulcis CCS Summer School, Sardinia, Italy to deliver presentations about CO₂ capture technologies and flexible energy conversion systems (2014, 2016, 2017); University of Liege, Belgium to deliver a presentation about Babes-Bolyai University research work on Carbon Capture, Utilization and Storage (CCUS) technologies (2018) and Universita degli Studi di Sannio, Benevento, Italy to deliver an online course related to energy conversion systems and Carbon Capture, Utilization and Storage (CCUS) technologies (2022). In addition, Prof. Calin-Cristian Cormos and his research team delivered presentations (including keynote) to many international conferences (e.g., Conference on Greenhouse Gas Technologies - GHGT; Clean Coal Technologies - CCT; European Symposium on Computer Aided Process Engineering - ESCAPE; Conference on Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction - PRES; International Conference on Chemical Reaction Engineering - ISCRE; World Hydrogen Energy Conference - WHEC etc.).

7. Curriculum Vitae

Prof. PhD Eng. Calin-Cristian Cormos

Calin-Cristian Cormos is professor of *Chemical reaction engineering and Process design and integration* at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering, Chemical Engineering Department, Cluj-Napoca, Romania. He holds a PhD in chemical engineering from Babes-Bolyai University (2004). He has consistent industrial experience working between 1995 - 2004 as Pantolactone plant manager, Head of technical department and Products development manager of Chemical Division at SC Terapia SA, Cluj-Napoca (with 1 industrial applied patent, participation to design, construction and operation of continuous beta-alanine production plant). From 2004, he works at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering as lecturer (2004 - 2008), associate professor (2008 - 2015) and full professor (2015 to present). Between 2005 - 2007, he was scientific officer at European Commission, Joint Research Center, Institute for Energy, The Netherlands being involved in a FP6 project for decarbonized hydrogen and power.

His research focus is on experimental and numerical investigations of the innovative energy conversion systems integrated with Carbon Capture, Utilization and Storage (CCUS) technologies for decarbonization of various industrial processes (e.g., heat and power, metallurgy, cement, chemistry etc.). During the past 15 years, he won many national and international research projects (worth more than 2.4 M€), gave numerous invited lectures at distinguished international conferences, published over 35 books & book chapters at Elsevier (e.g., Computer Aided Chemical Engineering, Encyclopedia of Sustainable Technologies) and Cluj University Press and more than 230 articles in highly-ranked journals and conferences. Prof. Calin-Cristian Cormos is also member of scientific committees / organization committee for international conferences (e.g., SDEWES, ESCAPE, CCT / CAPE Forum 2005) and editorial board member (e.g., Process Integration and Optimization for Sustainability, Clean Technologies and Environmental Policy, Journal of Sustainable Mining etc.).

His pioneering beyond state of the art research in the field of innovative energy conversion systems integrated with carbon capture and utilization technologies was international recognized by: high scientometric results (e.g. 3740 citations, Hirsch index 37); invitations to prestigious universities / research centers (e.g., ETH Zurich, Switzerland; Aalto University, Finland; Universita degli Studi di Sannio, Italy; Sotacarbo, Sardinia, Italy; University of Liege, Belgium etc.); inclusion in top 2% most cited scientists in the world (according to Stanford analysis, 2020 - 2023) for whole career as well as for the following relevant scientific fields: energy, chemical engineering and enabling & strategic technologies; 1st / 2nd top world position in CO₂ capture field according to bibliometric analysis; expert & project evaluator for various programmes (e.g., FP7, Horizon 2020 / Europe etc.). He received best paper award (e.g., PRES conference, 2022 and 2023), Babes-Bolyai University excellence prizes (2020, 2021, 2022, 2023), UEFISCDI awards for Web of science articles etc.

Prof. Calin-Cristian Cormos is leader of Cluj branch Society of Chemical Engineers Romania, vice-president of CNATDCU Commission no. 8 (Chemical engineering) and he is habilitated as PhD supervisor in chemical engineering (since 2015). Prof. Calin-Cristian Cormos has proved expertise in training and formation of young scientists e.g., 3 of his PhD students finished and defend their theses with excellent results in terms of technological developments and published articles (e.g., the cumulative impact factors of published articles were more than 25 for each of all graduated PhD students). Other 3 PhD are in the final stage of defending their theses with similar excellent results. From 2004 when Prof. Calin-Cristian Cormos became academic staff, he supervised more than 50 master and bachelor students. He acted also as PhD thesis evaluator for various universities e.g., Politecnico di Milano, Italy; University of Johannesburg, South Africa; Botswana University, Botswana; Politehnica University Bucharest, Romania in the field of energy and CO₂ capture.

As shown in this document, Prof. Calin-Cristian Cormos fully complies the quantity and quality indicators required for Research Gala 2024. For instance, in the last 5 years, he published 24 Q1-ranked articles; 1 invitation to prestigious foreign universities; 7 research projects as director / responsible; 3 editorial boards members and the sum of AIS reported per number of authors is 17.03.

Associate Professor PhD Eng. Letitia Petrescu

Associate Prof. Letitia Petrescu graduated chemical engineering, Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering, in 2003. One year later she got two MSc: one in chemical engineering, at Babes-Bolyai University, and the other one at University of Medicine and Pharmacy Iuliu Hatieganu, in pharmaceutical industrial technology. After the master studies, in 2004, she had a scholarship for nine months at International Center for Science and High Technology, United Nations Industrial Development Organization, ICS-UNIDO, Trieste, Italy. During her stay at ICS-UNIDO she was involved in various workshops, organized by the institution, and helped various scholarship engineers, coming from developing countries, to solve process modelling and simulation issues. She got the PhD in 2008 at University of Padua - University of Trieste, Italy, in chemical engineering in the field of sustainable industrial processes. The title of her PhD thesis was:

“Computer Aided Design of Sustainable Industrial Processes”
(https://www.research.unipd.it/handle/11577/3425001?1/Letitia_Toma_tesi_dottorato.pdf).

Between 2008 and 2012, she was an employee of API ROMANIA, American Process Inc., 750 Piedmont Avenue N.E., Atlanta Georgia GA 30308, USA; the activity domain was consultancy for the pulp and paper industry. From 2013 to present, she works at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering, Chemical Engineering Department as a research assistant (2013 - 2014), lecturer (2014 - 2021), associate professor (2021 - present). Currently she is an Associate Professor at Babes-Bolyai University being responsible for following academic disciplines: *“Computer Aided Design and software for chemical engineering”* and *“Process Intensification”*.

She has 20 years of experience in the scientific research, Hirsch index 16, a number of 32 ISI scientific articles in international journals, 27 scientific articles in pre-review conferences, 32 oral presentations and 9 poster presentations on various events/conferences (i.e., ESCAPE, SDEWES, GHGT, PRES, RICCCE, SEEP, ICHEAP, etc.). She coordinated 24 bachelor thesis and 11 master thesis and was/is part of the PhD coordination teams of 6 PhD students. Dr. Eng. Letitia Petrescu is involved in various research teams on national and international in the field of environmental impact assessment using LCA methodology, carbon capture, utilization and storage, energy conversion with carbon capture. She was responsible for Babes-Bolyai University of two HORIZON 2020 research projects with a total budget of 470000 Euro (as presented in section 9).

Her area of interest is related to: Life Cycle Assessment (LCA), sustainability evaluation, Carbon Capture Utilisation and Storage (CCUS), process intensification, energy conversion systems, CAPE OPEN in chemical engineering, process modelling and simulation. More details can be found:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=55849749300>;

ORCID: <https://orcid.org/0000-0002-0763-0561>;

Google Scholar: <https://scholar.google.ro/citations?user=2Ynhx7wAAAAJ&hl=enn>.

Professor PhD Ana-Maria Cormos

Ana-Maria Cormos is a habilitated professor of *Modeling and simulation of chemical processes* and *Computer programming* for chemical engineering students at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania. She graduated Chemistry-Physical, on 1996 and she got a MSc on interface process engineering field followed by PhD in chemical engineering on 2005 at Babes-Bolyai University. She had research / academic stages to prestigious universities / research institutes in the field of modelling and simulation of chemical processes and energy conversion systems (e.g., ETH Zurich, Switzerland; TU Wien, Austria).

Her innovative beyond state-of-the-art research activity is focused on Computer Aided Process Engineering (CAPE), modelling and simulation chemical/bio-chemical processes, Carbon Capture, Utilization and Storage (CCUS) technologies, heterogenous reacting systems (gas - liquid, gas - solid, gas - solid - liquid), Computational Fluid Dynamics (CFD), energy vectors poly-generation, techno-economic and environmental impact evaluations. During the past decades, she carried out many research projects as project coordinator / supervisor or team's member (attracting financial resources of more than 400000 € as presented in section 9), supervised over 35 graduation theses (MSc and BSc levels), and coordinated the research work of 5 PhD students; and published over 130 scientific papers (60+ in highly visible ISI indexed journals, over 50+ in ISI conferences proceedings). She is also member of scientific committees of prestigious conferences (e.g. PRES, SDEWES, HEFAT etc.) and scientific referent for highly visible international ISI journals (e.g., Energy, Fuel, Journal of Cleaner Production, Applied Thermal Engineering, International Journal of Hydrogen Energy, etc.). She gave invited lectures at prestigious international universities (e.g., University of Dortmund, Germany; ETH Zurich, Switzerland; Université de Liege, Belgium etc.).

She was involved in various institutional and administrative activities: elaboration of documentation evaluation of the research center in the field of Computer Aided Process Engineering; co-author of a study to evaluate the utility consumptions (natural gas, water, electricity etc.) of Babes-Bolyai University; co-author of a study National System for Research, Development and Innovation in the context of integration in the European Research Area (2006); expert and project evaluator for UEFISCDI, Romania; member of organizing committee for international conferences e.g., European Symposium on Computer Aided Process Engineering - ESCAPE-17 (Bucharest, 2007) and Computer Aided Process Engineering Forum - CAPE-Forum 2005 (Cluj-Napoca). More information about the scientific activity and scientometric indicators of Prof. Ana-Maria Cormos is available at:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=8450482900>;

ORCID: <https://orcid.org/0000-0003-0832-0722>;

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

As shown, Prof. Ana-Maria Cormos fully complies the indicators required for Research Gala 2024.

Associate Professor PhD Eng. Simion Dragan

Simion Dragan is an Associate Professor of *Transport and transfer phenomena* and *Heterogeneous processes engineering* within Chemical Engineering Department, Faculty of Chemistry and Chemical Engineering, Babes-Bolyai University, Cluj-Napoca, Romania. He got the PhD in 2002 at “Gheorghe Asachi” Technical University of Iasi, in chemical engineering, in the field of flue gas purification processes. He worked between 1988 - 1991 as Tarnaveni chemical plant, being the main responsible of the acid fluorhidric plant. Since 1991, he is working at Babes-Bolyai University, Faculty of Chemistry and Chemical Engineering as assistant professor (1991 - 1999), lecturer (1999 - 2007) and associate professor (2007 - up to date).

His key innovative beyond state-of-the-art expertise is within transfer phenomena and unit operations within chemical industry, heterogeneous gas-liquid and gas-solid chemical process engineering, operation and technological characterization of chemical and calcium looping cycles, modelling and research of chemical processes and environmental protection technologies.

He has more than 30 years of experience in the scientific research, a number of 38 ISI-ranked scientific articles in international journals, 20 scientific articles in peer-review conferences, 22 oral presentations and 8 poster presentations on various events / conferences (e.g., SSCHE, CAPE, RICCE, BIOREMED, ESCAPE, SDEWES, PRES etc.). He coordinated more than 90 bachelor thesis and more than 20 master thesis and was part of the PhD coordination teams of 9 PhD students.

Associate professor PhD eng. Simion Dragan was involved in various research teams on national and international projects which proves his visibility and technical competencies (for instance, research on reactive adsorption processes, ÖAAD programme at Institut für Verfahrens-, Brennstoff- und Umwelttechnik, Technische Universität Wien; obtaining nanocrystals under supercritical conditions, DAAD programe, at Institut für Thermische Verfahrenstechnik, Technische Universität Berlin, 2002, Mathematical description of crystallization under supercritical conditions, DAAD programe, at Friedrich Alexander Universität Nurenberg-Erlangen, Germany, 2004. He has top research expertise in Carbon Capture, Utilization and Storage (CCUS) technologies, innovative energy conversion and storage with carbon capture using chemical / calcium looping technologies, environmental protection using absorption process enhancement techniques.

More details on his activity scientific activity and scientometric indicators can be found on:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=7006274623>;

ORCID: <https://orcid.org/0000-0002-9849-9940>;

Google Scholar: https://scholar.google.com/citations?user=lwrX_m8AAAAJ&hl=en.

8. Publication list (relevant articles in last 5 years, bolded authors are from research team)

Prof. PhD Eng. Calin-Cristian Cormos

1. A.D. Selejan, H. Lisei, **A.M. Cormos**, **S. Dragan**, **C.C. Cormos**, *Development of a multi-scale mathematical model for green hydrogen production via biogas steam reforming process*, International Journal of Hydrogen Energy, 52, 2024, 469-484, <https://doi.org/10.1016/j.ijhydene.2023.07.057>, AIS total / per author: 0.788 / 0.157;
2. **C.C. Cormos**, *Deployment of integrated Power-to-X and CO₂ utilization systems: Techno-economic assessment of synthetic natural gas and methanol cases*, Applied Thermal Engineering, 231, 2023, 120943, <https://doi.org/10.1016/j.applthermaleng.2023.120943>, AIS total / per author: 0.933 / 0.933, Q1 zone;
3. **C.C. Cormos**, *Green hydrogen production from decarbonized biomass gasification: An integrated techno-economic and environmental analysis*, Energy, 270, 2023, 126926, <https://doi.org/10.1016/j.energy.2023.126926>, AIS total / per author: 1.237 / 1.237, Q1 zone;
4. **A.M. Cormos**, **L. Petrescu**, **C.C. Cormos**, *Techno-economic implications of time-flexible operation for iron-based chemical looping combustion cycle with energy storage capability*, Energy, 278, 2023, 127746, <https://doi.org/10.1016/j.energy.2023.127746>, AIS total / per author: 1.237 / 0.412, Q1 zone;
5. S.C. Galusnyak, **L. Petrescu**, V.C. Sandu, **C.C. Cormos**, *Environmental impact assessment of green ammoniacoupled with urea and ammonium nitrate production*, Journal of Environmental Management, 343, 2023, 118215, <https://doi.org/10.1016/j.jenvman.2023.118215>, AIS total / per author: 1.188 / 0.297;
6. F.M. Ilea, **A.M. Cormos**, V.M. Cristea, **C.C. Cormos**, *Enhancing the post-combustion carbon dioxide carbon capture plant performance by setpoints optimization of the decentralized multi-loop and cascade control system*, Energy, 275, 2023, 127490, <https://doi.org/10.1016/j.energy.2023.127490>, AIS total / per author: 1.237 / 0.309, Q1 zone;
7. D.A. Chisalita, **L. Petrescu**, S.C. Galusnyak, **C.C. Cormos**, *Environmental evaluation of hydrogen production employing innovative chemical looping technologies - A Romanian case study*, International Journal of Hydrogen Energy, 48, 2023, 12112 - 12128, <https://doi.org/10.1016/j.ijhydene.2022.06.029>, AIS total / per author: 0.788 / 0.197;
8. V.C. Sandu, **C.C. Cormos**, **A.M. Cormos**, *Multiscale CFD modelling of syngas-based chemical looping combustion in a packed bed reactor with dynamic gas switching technology*, Journal of Environmental Chemical Engineering, 11, 2023, 111381, <https://doi.org/10.1016/j.jece.2023.111381>, AIS total / per author: 0.879 / 0.293, Q1 zone;
9. S.C. Galusnyak, **L. Petrescu**, **C.C. Cormos**, *Environmental impact assessment of post-combustion CO₂ capture technologies applied to cement production plants*, Journal of

- Environmental Management, 320, 2022, 115908, <https://doi.org/10.1016/j.jenvman.2022.115908>, AIS total / per author: 1.188 / 0.396;
10. S.C. Galusnyak, L. Petrescu, D.A. Chisalita, C.C. Cormos, *Life cycle assessment of methanol production and conversion into various chemical intermediates and products*, Energy, 259, 2022, 124784, <https://doi.org/10.1016/j.energy.2022.124784>, AIS total / per author: 1.237 / 0.309, Q1 zone;
11. F.M. Ilea, A.M. Cormos, S. Dragan, C.C. Cormos, *Assessment of turbulent contact absorber hydrodynamics with application in carbon capture*, Chemical Engineering Journal, 449, 2022, 137674, <https://doi.org/10.1016/j.cej.2022.137674>, AIS total / per author: 2.022 / 0.505, Q1 zone;
12. S.C. Galusnyak, L. Petrescu, C.C. Cormos, *Classical vs. reactive distillation technologies for biodiesel production: An environmental comparison using LCA methodology*, Renewable Energy, 192, 2022, 289-299, <https://doi.org/10.1016/j.renene.2022.04.110>, AIS total / per author: 1.232 / 0.410;
13. C.C. Cormos, *Decarbonization options for cement production process: A techno-economic and environmental evaluation*, Fuel, 320, 2022, 123907, <https://doi.org/10.1016/j.fuel.2022.123907>, AIS total / per author: 0.89 / 0.89, Q1 zone;
14. C.C. Cormos, A.M. Cormos, L. Petrescu, S. Dragan, *Techno-economic assessment of decarbonized biogas catalytic reforming for flexible hydrogen and power production*, Applied Thermal Engineering, 207, 2022, 118218, <https://doi.org/10.1016/j.applthermaleng.2022.118218>, AIS total / per author: 0.933 / 0.233, Q1 zone;
15. A.M. Cormos, S. Dragan, C.C. Cormos, *Integration of membrane technology for decarbonization of gasification power plants: A techno-economic and environmental investigation*, Applied Thermal Engineering, 205, 2022, 118078, <https://doi.org/10.1016/j.applthermaleng.2022.118078>, AIS total / per author: 0.933 / 0.311, Q1 zone;
16. A. Ugwu, C. Arnaiz del Pozo, A. Zaabout, S. Mohd Nazir, N. Uzun Kalendar, S. Cloete, S. Szima, S. Fogarasi, F. Donat, G. van Diest, J. Hendrik Cloete, Á. Jiménez Álvaro, K. Albertsen, A.M. Cormos, C.C. Cormos, S. Amini, *Gas switching technology: Economic attractiveness for chemical looping applications and scale up experience to 50 kWth*, International Journal of Greenhouse Gas Control, 114, 2022, 103593, <https://doi.org/10.1016/j.ijggc.2022.103593>, AIS total / per author: 0.706 / 0.044;

17. M. Alabid, **C.C. Cormos**, C. Dinca, *Critical assessment of membrane technology integration in a coal-fired power plant*, *Membranes*, 12, 2022, 904, <https://doi.org/10.3390/membranes12090904>, AIS total / per author: 0.528 / 0.176;
18. V.C. Sandu, **A.M. Cormos**, I.D. Dumbrava, A. Imre-Lucaci, **C.C. Cormos**, R. de Boer, J. Boon, S. Sluijter, *Assessment of CO₂ capture efficiency in packed bed versus 3D-printed monolith reactors for SEWGS using CFD modeling*, *International Journal of Greenhouse Gas Control*, 111, 2021, 103447, <https://doi.org/10.1016/j.ijggc.2021.103447>, AIS total / per author: 0.706 / 0.088;
19. **A.M. Cormos**, **S. Dragan**, **C.C. Cormos**, *Techno-economic and environmental assessment of flexible operation for decarbonized super-critical power plants using reactive gas - liquid absorption*, *Applied Thermal Engineering*, 197, 2021, 117354, <https://doi.org/10.1016/j.applthermaleng.2021.117354>, AIS total / per author: 0.933 / 0.311, Q1 zone;
20. I.D. Dumbrava, **C.C. Cormos**, A. Imre-Lucaci, **A.M. Cormos**, *CFD modelling of supercritical water reforming of glycerol for hydrogen production*, *International Journal of Hydrogen Energy*, 47, 2022, 12147-12158, <https://doi.org/10.1016/j.ijhydene.2021.05.143>, AIS total / per author: 0.788 / 0.197;
21. A.C. Bozonc, **A.M. Cormos**, **S. Dragan**, C. Dinca, **C.C. Cormos**, *Dynamic modeling of CO₂ absorption process using hollow-fiber membrane contactor in MEA solution*, *Energies*, 15, 2022, 7241, <https://doi.org/10.3390/en15197241>, AIS total / per author: 0.435 / 0.087;
22. A. Mio, **L. Petrescu**, A.V. Luca, S.C. Galusnyak, M. Fermeglia, **C.C. Cormos**, *Carbon dioxide capture in the iron and steel industry: Thermodynamic analysis, process simulation, and life cycle assessment*, *Chemical and Biochemical Engineering Quarterly*, 36, 2022, 255 - 271, <https://doi.org/10.15255/CABEQ.2022.2123>, AIS total / per author: 0.19 / 0.031;
23. **L. Petrescu**, S. Burca, M. Fermeglia, A. Mio, **C.C. Cormos**, *Process simulation coupled with LCA for the evaluation of liquid - liquid extraction processes of phenol from aqueous streams*, *Journal of Water Process Engineering*, 41, 2021, 102077, <https://doi.org/10.1016/j.jwpe.2021.102077>, AIS total / per author: 0.788 / 0.157, Q1 zone;
24. G. Luongo, F. Donat, M. Krödel, **C.C. Cormos**, C.R. Müller, *Experimental data supported techno-economic assessment of the oxidative dehydrogenation of ethane through chemical looping with oxygen uncoupling*, *Renewable and Sustainable Energy Reviews*, 149, 2021, 111403, <https://doi.org/10.1016/j.rser.2021.111403>, AIS total / per author: 2.739 / 0.547, Q1 zone;

25. I.D. Dumbrava, C.C. Cormos, *Techno-economical evaluations of decarbonized hydrogen production based on direct biogas conversion using thermo-chemical looping cycles*, International Journal of Hydrogen Energy, 46, 2021, 23149-23163, <https://doi.org/10.1016/j.ijhydene.2021.04.142>, AIS total / per author: 0.788 / 0.394;
26. C.C. Cormos, *Techno-economic assessment of calcium and magnesium-based sorbents for post-combustion CO₂ capture applied in fossil-fueled power plants*, Fuel, 298, 2021, 120794, <https://doi.org/10.1016/j.fuel.2021.120794>, AIS total / per author: 0.89 / 0.89, Q1 zone;
27. C.C. Cormos, C. Dinca, *Techno-economic and environmental implications of decarbonization process applied for Romanian fossil-based power generation sector*, Energy, 220, 2021, 119734, <https://doi.org/10.1016/j.energy.2020.119734>, AIS total / per author: 1.237 / 0.618, Q1 zone;
28. C.C. Cormos, L. Petrescu, A.M. Cormos, C. Dinca, *Assessment of hybrid solvent - membrane configurations for post-combustion CO₂ capture for super-critical power plants*, Energies, 14, 2021, 5017, <https://doi.org/10.3390/en14165017>, AIS total / per author: 0.435 / 0.108;
29. V.C. Sandu, A.M. Cormos, C.C. Cormos, *Fuel reactor CFD multiscale modelling in syngas-based chemical looping combustion with ilmenite*, Energies, 14, 2021, 6059, <https://doi.org/10.3390/en14196059>, AIS total / per author: 0.435 / 0.145;
30. S. Szima, C.C. Cormos, *CO₂ utilization technologies: A techno-economic analysis for synthetic natural gas production*, Energies, 14, 2021, 1258, <https://doi.org/10.3390/en14051258>, AIS total / per author: 0.435 / 0.217;
31. A.M. Cormos, I. Dumbrava, C.C. Cormos, *Evaluation of techno-economic performance for decarbonized hydrogen and power generation based on glycerol thermo-chemical looping cycles*, Applied Thermal Engineering, 179, 2020, 115728, <https://doi.org/10.1016/j.applthermaleng.2020.115728>, AIS total / per author: 0.933 / 0.311, Q1 zone;
32. C.C. Cormos, *Techno-economic implications of flexible operation for super-critical power plants equipped with calcium looping cycle as a thermo-chemical energy storage system*, Fuel, 280, 2020, 118293, <https://doi.org/10.1016/j.fuel.2020.118293>, AIS total / per author: 0.89 / 0.89, Q1 zone;
33. D.A. Chisalita, L. Petrescu, C.C. Cormos, *Environmental evaluation of european ammonia production considering various hydrogen supply chains*, Renewable and Sustainable Energy Reviews, 130, 2020, 109964, <https://doi.org/10.1016/j.rser.2020.109964>, AIS total / per author: 2.739 / 0.913, Q1 zone;

34. **A.M. Cormos, V.C. Sandu, C.C. Cormos**, *Assessment of main energy integration elements for decarbonized gasification plants based on thermo-chemical looping cycles*, *Journal of Cleaner Production*, 259, 2020, 120834, <https://doi.org/10.1016/j.jclepro.2020.120834>, AIS total / per author: 1.481 / 0.493, Q1 zone;
35. **C.C. Cormos**, *Energy and cost efficient manganese chemical looping air separation cycle for decarbonized power generation based on oxy-fuel combustion and gasification*, *Energy*, 191, 2020, 116579, <https://doi.org/10.1016/j.energy.2019.116579>, AIS total / per author: 1.237 / 1.237, Q1 zone;
36. **A.M. Cormos, S. Dragan, L. Petrescu, V.C. Sandu, C.C. Cormos**, *Techno-Economic and Environmental Evaluations of Decarbonized Fossil-Intensive Industrial Processes by Reactive Absorption & Adsorption CO₂ Capture Systems*, *Energies*, 13, 2020, 1268, <https://doi.org/10.3390/en13051268>, AIS total / per author: 0.435 / 0.087;
37. **A.M. Cormos, C.C. Cormos**, *Techno-economic assessment of combined hydrogen & power co-generation with carbon capture: The case of coal gasification*, *Applied Thermal Engineering*, 147, 2019, 29-39, <https://doi.org/10.1016/j.applthermaleng.2018.10.064>, AIS total / per author: 0.933 / 0.466, Q1 zone;
38. **S. Szima, C.C. Cormos**, *Techno - economic assessment of flexible decarbonized hydrogen and power co-production based on natural gas dry reforming*, *International Journal of Hydrogen Energy*, 44, 2019, 31712-31723, <https://doi.org/10.1016/j.ijhydene.2019.10.115>, AIS total / per author: 0.788 / 0.394;
39. **D.A. Chisalita, C.C. Cormos**, *Techno-economic assessment of hydrogen production processes based on various natural gas chemical looping systems with carbon capture*, *Energy*, 181, 2019, 331-344, <https://doi.org/10.1016/j.energy.2019.05.179>, AIS total / per author: 1.237 / 0.618, Q1 zone;
40. **S. Szima, S.M. Nazir, S. Cloete, S. Amini, S. Fogarasi, A.M. Cormos, C.C. Cormos**, *Gas switching reforming for flexible power and hydrogen production to balance variable renewables*, *Renewable and Sustainable Energy Reviews*, 110, 2019, 207-219, <https://doi.org/10.1016/j.rser.2019.03.061>, AIS total / per author: 2.739 / 0.391, Q1 zone;
41. **D.A. Chisalita, L. Petrescu, P. Cobden, H.A.J van Dijk, A.M. Cormos, C.C. Cormos**, *Assessing the environmental impact of an integrated steel mill with post-combustion CO₂ capture and storage using the LCA methodology*, *Journal of Cleaner Production*, 211, 2019, 1015-1025, <https://doi.org/10.1016/j.jclepro.2018.11.256>, AIS total / per author: 1.481 / 0.246, Q1 zone.

42. L. Petrescu, D.A. Chisalita, C.C. Cormos, G. Manzolini, P. Cobden, H.A.J. van Dijk, *Life cycle assessment of SEWGS technology applied to integrated steel plants*, Sustainability, 11, 2019, 1825, <https://doi.org/10.3390/su11071825>, AIS total / per author: 0.526 / 0.087.

Number of Q1 and Q2 articles as main author: 18

Number of Q1 articles: 24

Sum of AIS reported per number of authors: 17.032

Assoc. Prof. PhD Eng. Letitia Petrescu

1. A.M. Cormos, L. Petrescu, C.C. Cormos, *Techno-economic implications of time-flexible operation for iron-based chemical looping combustion cycle with energy storage capability*, Energy, 278, 2023, 127746, <https://doi.org/10.1016/j.energy.2023.127746>, AIS total / per author: 1.237 / 0.412, Q1 zone;
2. S.C. Galusnyak, L. Petrescu, V.C. Sandu, C.C. Cormos, *Environmental impact assessment of green ammoniacoupled with urea and ammonium nitrate production*, Journal of Environmental Management, 343, 2023, 118215, <https://doi.org/10.1016/j.jenvman.2023.118215>, AIS total / per author: 1.188 / 0.297;
3. D.A. Chisalita, L. Petrescu, S.C. Galusnyak, C.C. Cormos, *Environmental evaluation of hydrogen production employing innovative chemical looping technologies – A Romanian case study*, International Journal of Hydrogen Energy, 48, 2023, 12112 - 12128, <https://doi.org/10.1016/j.ijhydene.2022.06.029>, AIS total / per author: 0.788 / 0.197;
4. S.C. Galusnyak, L. Petrescu, C.C. Cormos, *Environmental impact assessment of post-combustion CO₂ capture technologies applied to cement production plants*, Journal of Environmental Management, 320, 2022, 115908, <https://doi.org/10.1016/j.jenvman.2022.115908>, AIS total / per author: 1.188 / 0.396;
5. S.C. Galusnyak, L. Petrescu, D.A. Chisalita, C.C. Cormos, *Life cycle assessment of methanol production and conversion into various chemical intermediates and products*, Energy, 259, 2022, 124784, <https://doi.org/10.1016/j.energy.2022.124784>, AIS total / per author: 1.237 / 0.309, Q1 zone;
6. S.C. Galusnyak, L. Petrescu, C.C. Cormos, *Classical vs. reactive distillation technologies for biodiesel production: An environmental comparison using LCA methodology*, Renewable Energy, 192, 2022, 289-299, <https://doi.org/10.1016/j.renene.2022.04.110>, AIS total / per author: 1.232 / 0.410;
7. C.C. Cormos, A.M. Cormos, L. Petrescu, S. Dragan, *Techno-economic assessment of decarbonized biogas catalytic reforming for flexible hydrogen and power production*, Applied Thermal Engineering, 207, 2022, 118218;

<https://doi.org/10.1016/j.applthermaleng.2022.118218>, AIS total / per author: 0.933 / 0.233, Q1 zone;

8. A. Mio, L. Petrescu, A.V. Luca, S.C. Galusnyak, M. Fermeglia, C.C. Cormos, *Carbon dioxide capture in the iron and steel industry: Thermodynamic analysis, process simulation, and life cycle assessment*, Chemical and Biochemical Engineering Quarterly, 36, 2022, 255 - 271, <https://doi.org/10.15255/CABEQ.2022.2123>, AIS total / per author: 0.19 / 0.031;

9. L. Petrescu, S. Burca, M. Fermeglia, A. Mio, C.C. Cormos, *Process simulation coupled with LCA for the evaluation of liquid - liquid extraction processes of phenol from aqueous streams*, Journal of Water Process Engineering, 41, 2021, 102077, <https://doi.org/10.1016/j.jwpe.2021.102077>, AIS total / per author: 0.788 / 0.157, Q1 zone;

10. C.C. Cormos, L. Petrescu, A.M. Cormos, C. Dinca, *Assessment of hybrid solvent - membrane configurations for post-combustion CO₂ capture for super-critical power plants*, Energies, 14, 2021, 5017, <https://doi.org/10.3390/en14165017>, AIS total / per author: 0.435 / 0.108;

11. D.A. Chisalita, L. Petrescu, C.C. Cormos, *Environmental evaluation of european ammonia production considering various hydrogen supply chains*, Renewable and Sustainable Energy Reviews, 130, 2020, 109964, <https://doi.org/10.1016/j.rser.2020.109964>, AIS total / per author: 2.739 / 0.913, Q1 zone;

12. A.M. Cormos, S. Dragan, L. Petrescu, V.C. Sandu, C.C. Cormos, *Techno-Economic and Environmental Evaluations of Decarbonized Fossil-Intensive Industrial Processes by Reactive Absorption & Adsorption CO₂ Capture Systems*, Energies, 13, 2020, 1268, <https://doi.org/10.3390/en13051268>, AIS total / per author: 0.435 / 0.087;

13. D.A. Chisalita, L. Petrescu, P. Cobden, H.A.J van Dijk, A.M. Cormos, C.C. Cormos, *Assessing the environmental impact of an integrated steel mill with post-combustion CO₂ capture and storage using the LCA methodology*, Journal of Cleaner Production, 211, 2019, 1015-1025, <https://doi.org/10.1016/j.jclepro.2018.11.256>, AIS total / per author: 1.481 / 0.246, Q1 zone;

14. L. Petrescu, D.A. Chisalita, C.C. Cormos, G. Manzolini, P. Cobden, H.A.J. van Dijk, *Life cycle assessment of SEWGS technology applied to integrated steel plants*, Sustainability, 11, 2019, 1825, <https://doi.org/10.3390/su11071825>, AIS total / per author: 0.526 / 0.087.

Number of Q1 and Q2 articles as main author: 8

Number of Q1 articles: 6

Sum of AIS reported per number of authors: 3.883

Prof. PhD Ana-Maria Cormos

1. A.D. Selejan, H. Lisei, **A.M. Cormos, S. Dragan, C.C. Cormos**, *Development of a multi-scale mathematical model for green hydrogen production via biogas steam reforming process*, International Journal of Hydrogen Energy, 52, 2024, 469-484, <https://doi.org/10.1016/j.ijhydene.2023.07.057>, AIS total / per author: 0.788 / 0.157;
2. **A.M. Cormos, L. Petrescu, C.C. Cormos**, *Techno-economic implications of time-flexible operation for iron-based chemical looping combustion cycle with energy storage capability*, Energy, 278, 2023, 127746, <https://doi.org/10.1016/j.energy.2023.127746>, AIS total / per author: 1.237 / 0.412, Q1 zone;
3. F.M. Ilea, **A.M. Cormos, V.M. Cristea, C.C. Cormos**, *Enhancing the post-combustion carbon dioxide carbon capture plant performance by setpoints optimization of the decentralized multi-loop and cascade control system*, Energy, 275, 2023, 127490, <https://doi.org/10.1016/j.energy.2023.127490>, AIS total / per author: 1.237 / 0.309, Q1 zone;
4. V.C. Sandu, **C.C. Cormos, A.M. Cormos**, *Multiscale CFD modelling of syngas-based chemical looping combustion in a packed bed reactor with dynamic gas switching technology*, Journal of Environmental Chemical Engineering, 11, 2023, 111381, <https://doi.org/10.1016/j.jece.2023.111381>, AIS total / per author: 0.879 / 0.293, Q1 zone;
5. **S. Dragan, H. Lisei, F.M. Ilea, A. Bozoc, A.M. Cormos**, *Dynamic modeling assessment of CO₂ capture process using aqueous ammonia*, Energies, 2023, 16, 4337, <https://doi.org/10.3390/en16114337>, AIS total / per author: 0.435 / 0.087;
6. F.M. Ilea, **A.M. Cormos, S. Dragan, C.C. Cormos**, *Assessment of turbulent contact absorber hydrodynamics with application in carbon capture*, Chemical Engineering Journal, 449, 2022, 137674, <https://doi.org/10.1016/j.cej.2022.137674>, AIS total / per author: 2.022 / 0.505, Q1 zone;
7. **C.C. Cormos, A.M. Cormos, L. Petrescu, S. Dragan**, *Techno-economic assessment of decarbonized biogas catalytic reforming for flexible hydrogen and power production*, Applied Thermal Engineering, 207, 2022, 118218, <https://doi.org/10.1016/j.applthermaleng.2022.118218>, AIS total / per author: 0.933 / 0.233, Q1 zone;
8. **A.M. Cormos, S. Dragan, C.C. Cormos**, *Integration of membrane technology for decarbonization of gasification power plants: A techno-economic and environmental investigation*, Applied Thermal Engineering, 205, 2022, 118078, <https://doi.org/10.1016/j.applthermaleng.2022.118078>, AIS total / per author: 0.933 / 0.311, Q1 zone;

9. A. Ugwu, C. Arnaiz del Pozo, A. Zaabout, S. Mohd Nazir, N. Uzun Kalendar, S. Cloete, S. Szima, S. Fogarasi, F. Donat, G. van Diest, J. Hendrik Cloete, Á. Jiménez Álvaro, K. Albertsen, **A.M. Cormos**, **C.C. Cormos**, S. Amini, *Gas switching technology: Economic attractiveness for chemical looping applications and scale up experience to 50 kWth*, International Journal of Greenhouse Gas Control, 114, 2022, 103593, <https://doi.org/10.1016/j.ijggc.2022.103593>, AIS total / per author: 0.706 / 0.044;
10. V.C. Sandu, **A.M. Cormos**, I.D. Dumbrava, A. Imre-Lucaci, **C.C. Cormos**, R. de Boer, J. Boon, S. Sluijter, *Assessment of CO₂ capture efficiency in packed bed versus 3D-printed monolith reactors for SEWGS using CFD modeling*, International Journal of Greenhouse Gas Control, 111, 2021, 103447, <https://doi.org/10.1016/j.ijggc.2021.103447>, AIS total / per author: 0.706 / 0.088;
11. **A.M. Cormos**, **S. Dragan**, **C.C. Cormos**, *Techno-economic and environmental assessment of flexible operation for decarbonized super-critical power plants using reactive gas - liquid absorption*, Applied Thermal Engineering, 197, 2021, 117354, <https://doi.org/10.1016/j.applthermaleng.2021.117354>, AIS total / per author: 0.933 / 0.311, Q1 zone;
12. I.D. Dumbrava, **C.C. Cormos**, A. Imre-Lucaci, **A.M. Cormos**, *CFD modelling of supercritical water reforming of glycerol for hydrogen production*, International Journal of Hydrogen Energy, 47, 2022, 12147-12158, <https://doi.org/10.1016/j.ijhydene.2021.05.143>, AIS total / per author: 0.788 / 0.197;
13. A.C. Bozonc, **A.M. Cormos**, **S. Dragan**, C. Dinca, **C.C. Cormos**, *Dynamic Modeling of CO₂ Absorption Process Using Hollow-Fiber Membrane Contactor in MEA Solution*, Energies, 15, 2022, 7241, <https://doi.org/10.3390/en15197241>, AIS total / per author: 0.435 / 0.087;
14. **C.C. Cormos**, **L. Petrescu**, **A.M. Cormos**, C. Dinca, *Assessment of hybrid solvent - membrane configurations for post-combustion CO₂ capture for super-critical power plants*, Energies, 14, 2021, 5017, <https://doi.org/10.3390/en14165017>, AIS total / per author: 0.435 / 0.108;
15. V.C. Sandu, **A.M. Cormos**, **C.C. Cormos**, *Fuel reactor CFD multiscale modelling in syngas-based chemical looping combustion with ilmenite*, Energies, 14, 2021, 6059, <https://doi.org/10.3390/en14196059>, AIS total / per author: 0.435 / 0.145;
16. **A.M. Cormos**, I. Dumbrava, **C.C. Cormos**, *Evaluation of techno-economic performance for decarbonized hydrogen and power generation based on glycerol thermo-chemical looping cycles*, Applied Thermal Engineering, 179, 2020, 115728,

<https://doi.org/10.1016/j.applthermaleng.2020.115728>, AIS total / per author: 0.933 / 0.311, Q1 zone;

17. **A.M. Cormos**, V.C. Sandu, **C.C. Cormos**, *Assessment of main energy integration elements for decarbonized gasification plants based on thermo-chemical looping cycles*, Journal of Cleaner Production, 259, 2020, 120834, <https://doi.org/10.1016/j.jclepro.2020.120834>, AIS total / per author: 1.481 / 0.493, Q1 zone;

18. V.M. Cristea, M.I. Burca, F.M. Ilea, **A.M. Cormos**, *Efficient decentralized control of the post combustion CO₂ capture plant for flexible operation against influent flue gas disturbances*, Energy, 205, 2020, 117960, <https://doi.org/10.1016/j.energy.2020.117960>, AIS total / per author: 1.237 / 0.309, Q1 zone;

19. F.M. Ilea, **S. Dragan**, **A.M. Cormos**, *Assessment of mass transfer intensification potential for a CO₂ capture process using three-phase fluidized bed*, Chemical Engineering and Processing - Process Intensification, 157, 2020, 108115, <https://doi.org/10.1016/j.cep.2020.108115>, AIS total / per author: 0.563 / 0.187;

20. **A.M. Cormos**, **S. Dragan**, **L. Petrescu**, V.C. Sandu, **C.C. Cormos**, *Techno-Economic and Environmental Evaluations of Decarbonized Fossil-Intensive Industrial Processes by Reactive Absorption & Adsorption CO₂ Capture Systems*, Energies, 13, 2020, 1268, <https://doi.org/10.3390/en13051268>, AIS total / per author: 0.435 / 0.087;

21. **A.M. Cormos**, **C.C. Cormos**, *Techno-economic assessment of combined hydrogen & power co-generation with carbon capture: The case of coal gasification*, Applied Thermal Engineering, 147, 2019, 29-39, <https://doi.org/10.1016/j.applthermaleng.2018.10.064>, AIS total / per author: 0.933 / 0.466, Q1 zone;

22. S. Szima, S.M. Nazir, S. Cloete, S. Amini, S. Fogarasi, **A.M. Cormos**, **C.C. Cormos**, *Gas switching reforming for flexible power and hydrogen production to balance variable renewables*, Renewable and Sustainable Energy Reviews, 110, 2019, 207-219, <https://doi.org/10.1016/j.rser.2019.03.061>, AIS total / per author: 2.739 / 0.391, Q1 zone;

23. D.A. Chisalita, **L. Petrescu**, P. Cobden, H.A.J van Dijk, **A.M. Cormos**, **C.C. Cormos**, *Assessing the environmental impact of an integrated steel mill with post-combustion CO₂ capture and storage using the LCA methodology*, Journal of Cleaner Production, 211, 2019, 1015-1025, <https://doi.org/10.1016/j.jclepro.2018.11.256>, AIS total / per author: 1.481 / 0.246, Q1 zone;

Number of Q1 and Q2 articles as main author: 13

Number of Q1 articles: 13

Sum of AIS reported per number of authors: 5.77

Assoc. Prof. PhD Eng. Simion Dragan

1. A.D. Selejan, H. Lisei, A.M. Cormos, S. Dragan, C.C. Cormos, *Development of a multi-scale mathematical model for green hydrogen production via biogas steam reforming process*, International Journal of Hydrogen Energy, 52, 2024, 469-484, <https://doi.org/10.1016/j.ijhydene.2023.07.057>, AIS total / per author: 0.788 / 0.157;
2. S. Dragan, H. Lisei, F.M. Ilea, A. Bozoc, A.M. Cormos, *Dynamic modeling assessment of CO₂ capture process using aqueous ammonia*, Energies, 2023, 16, 4337, <https://doi.org/10.3390/en16114337>, AIS total / per author: 0.435 / 0.087;
3. F.M. Ilea, A.M. Cormos, S. Dragan, C.C. Cormos, *Assessment of turbulent contact absorber hydrodynamics with application in carbon capture*, Chemical Engineering Journal, 449, 2022, 137674, <https://doi.org/10.1016/j.cej.2022.137674>, AIS total / per author: 2.022 / 0.505, Q1 zone;
4. C.C. Cormos, A.M. Cormos, L. Petrescu, S. Dragan, *Techno-economic assessment of decarbonized biogas catalytic reforming for flexible hydrogen and power production*, Applied Thermal Engineering, 207, 2022, 118218; <https://doi.org/10.1016/j.applthermaleng.2022.118218>, AIS total / per author: 0.933 / 0.233, Q1 zone;
5. A.M. Cormos, S. Dragan, C.C. Cormos, *Integration of membrane technology for decarbonization of gasification power plants: A techno-economic and environmental investigation*, Applied Thermal Engineering, 205, 2022, 118078; <https://doi.org/10.1016/j.applthermaleng.2022.118078>, AIS total / per author: 0.933 / 0.311, Q1 zone;
6. A.C. Bozoc, A.M. Cormos, S. Dragan, C. Dinca, C.C. Cormos, *Dynamic Modeling of CO₂ Absorption Process Using Hollow-Fiber Membrane Contactor in MEA Solution*, Energies, 15, 2022, 7241, <https://doi.org/10.3390/en15197241>, AIS total / per author: 0.435 / 0.087;
7. A.M. Cormos, S. Dragan, C.C. Cormos, *Techno-economic and environmental assessment of flexible operation for decarbonized super-critical power plants using reactive gas - liquid absorption*, Applied Thermal Engineering, 197, 2021, 117354, <https://doi.org/10.1016/j.applthermaleng.2021.117354>, AIS total / per author: 0.933 / 0.311, Q1 zone;
8. A.M. Cormos, S. Dragan, L. Petrescu, V.C. Sandu, C.C. Cormos, *Techno-Economic and Environmental Evaluations of Decarbonized Fossil-Intensive Industrial Processes by Reactive Absorption & Adsorption CO₂ Capture Systems*, Energies, 13, 2020, 1268, <https://doi.org/10.3390/en13051268>, AIS total / per author: 0.435 / 0.087;

9. F.M. Ilea, S. Dragan, A.M. Cormos, *Assessment of mass transfer intensification potential for a CO₂ capture process using three-phase fluidized bed*, Chemical Engineering and Processing - Process Intensification, 157, 2020, 108115, <https://doi.org/10.1016/j.cep.2020.108115>, AIS total / per author: 0.563 / 0.187.

Number of Q1 and Q2 articles as main author: 4

Number of Q1 articles: 4

Sum of AIS reported per number of authors: 1.965

9. Project list

Prof. PhD Eng. Calin-Cristian Cormos was project director / responsible for proposals:

1. *CaLby2030: Decarbonizing industrial processes with Calcium Looping*, Horizon Europe, No. 101075416, Duration: 2022 - 2026, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 276125 Euro, Webpage: <https://www.calby2030.eu/home-page-en>;

2. *Advanced thermo-chemical systems for time-flexible energy conversion and storage applications with low carbon dioxide emissions*, Exploratory research project, PN-III-P4-ID-PCE-2020-0032, Duration: 2021 - 2023, Project director, Budget: 1198032 RON, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/idei_cormos_calin_2021/home.html;

3. *Validation of innovative energy efficient calcium looping technology for decarbonization of fossil fuel-intensive industrial applications*, Experimental - demonstrative project (PED), PN-III-P2-2.1-PED-2019-0181, Duration: 2020 - 2022, Project director, Budget: 600000 RON, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/innocal_2020/home.html;

4. *Hybrid Solvent – Membrane for post-combustion CO₂ capture and utilization*, NO Grants Call for Proposals 2019 - CRPs, RO-NO-2019-0379, 2020 - 2023, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 200000 Euro, Webpage: http://co2hybrid.upb.ro/index_ro.html;

5. *Developing innovative low carbon solutions for energy-intensive industrial applications by Carbon Capture, Utilization and Storage (CCUS) technologies*, Exploratory research project, PN-III-P4-ID-PCE-2016-0031, Duration: 2017 - 2019, Project director, Budget 848000 RON, Webpage: <https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/idei/home.html>;

6. *3D-CAPS: Three-dimensional printed capture materials for productivity step-change*, ERANET ACT, No. 87/2017, Duration: 2017 - 2020, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 200000 Euro + 60000 Euro (from industry);
7. *SEWGS: Technology platform for cost effective CO₂ reduction in the iron & steel industry*, Horizon 2020, Nr. 640769, Duration: 2015 - 2019, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 262000 Euro;
8. *Advanced thermo-chemical looping cycles for the poly-generation of decarbonised energy vectors: Material synthesis and characterization, process modelling and life cycle analysis*, Romanian-Swiss Research Programme (RSRP), IZERZO_141976/1, Duration: 2013 - 2015, Project director, Budget for Babes-Bolyai University: 215771 CHF, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/project_ro_ch/research.html;
9. *Innovative methods for carbon dioxide capture applied for decarbonised energy vectors poly-generation*, ERC-like project, PNII-CT-ERC-2012-1; 2ERC, Duration: 2012 - 2014, Project director, Budget: 1495000 RON, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/decarbenerg_project_2014/research.html;
10. *Innovative methods for chemical looping carbon dioxide capture applied to energy conversion processes for decarbonized energy vectors poly-generation*, Exploratory research project, PN-II-ID-PCE-2011-3-0028, Duration: 2011 - 2016, Project director, Budget: 1000000 RON, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/clc_project/home.html.

Number of national and international projects as project director / reasonable: 10

Assoc. Prof. PhD Eng. Letitia Petrescu was project responsible for following proposals:

1. *RESTORE - Renewable Energy based seasonal Storage Technology in Order to Raise Economic and environmental sustainability of DHC*, Horizon 2020, No. 175000, Duration: 2021 - 2025, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 175000 Euro, Webpage: <https://www.restore-dhc.eu/>;
2. *CONVERGE - Carbon valorisation in energy-efficient green fuels*, Horizon 2020, No. 818135, Duration: 2018 - 2022, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 295000 Euro, Webpage: <https://www.converge-h2020.eu/>.

Number of national and international projects as project director / reasonable: 2

Prof. PhD Ana-Maria Cormos was project director / responsible for following proposals:

1. *Integrating process intensification methods with advanced control strategies for improved performance of CO₂ capture systems*, Exploratory research project, PN-III-P4-ID-PCE-2020-0632, Duration: 2021 - 2023, Project director, Budget: 1198032 RON, Webpage: https://www.chem.ubbcluj.ro/romana/ANEX/inginerie/proiecte/idei_cormos_anamaria_2021/home.html;

2. *Demonstration of gas switching technology for accelerated scale-up of pressurized chemical looping applications (GaSTech)*, ERANET ACT, No. 91/2017, Duration: 2017 - 2020, Project responsible from Babes-Bolyai University, Budget for Babes-Bolyai University: 200000 Euro.

Number of national and international projects as project director / reasonable: 2

10. Patent list

1. L. Terec, G. Bora, V. Colceriu, **C.C. Cormos**, E. Cotoră, L. Lenta, M. Moga, H. Muresanu, M. Racolta, Process for the purification of 1,4-benzoquinone guanyldrazone thiosemicarbazone (ambazone) / Procedeu de purificare a 1,4-benzochinon-guanil-hidrazon-tiosemicarbazona (ambazonă), International patent: WO/2005/028431 / Romania patent: RO122360, Applicant: S.C. Terapia S.A., Cluj-Napoca, Romania;

2. A. Pop, V. Miclaus, R. Barabas, **S. Dragan**, V. Mitre, I. Mitre, Compoziție de îngrășământ foliar pe bază de calciu și procedeu de obținere, Romania patent no. 123139, 2010.

Signature

on behalf of research the team

Prof. Calin-Cristian Cormos

