

## NAME



**ADAM SMOLIŃSKI**

Professor, PhD, DSc  
Scientific Secretary

## CONTACT INFORMATION

Central Mining Institute  
Plac Gwarków 1  
40-166, Katowice, Poland  
Phone: + 48 32 259 2252  
Fax: + 48 32 259 6533  
Email: [asmolinski@gig.eu](mailto:asmolinski@gig.eu)  
Office hours: Monday - Friday 9:00 - 14:00

ORCID: <https://orcid.org/0000-0002-4901-7546>  
Scopus ID: Scopus Author ID: 18635259700  
ResearcherID: P-5333-2018  
Mendeley: <https://www.mendeley.com/profiles/adam-smolinski/>  
ResearchGate: [https://www.researchgate.net/profile/Adam\\_Smolinski](https://www.researchgate.net/profile/Adam_Smolinski)  
Google Scholar: <https://scholar.google.pl/citations?user=9w6F-vcAAA&hl=pl>

## RESEARCH TOPICS

Research interests focus on energy technologies, in particular coal and biomass gasification/co-gasification, combustion/co-combustion, cogeneration, renewable energy, hydrogen technologies, sustainable energy systems, environmental impact of industrial systems, energy storage, carbon dioxide capture, storage and chemical utilization (CCS, CCU) and advanced methods of data mining (chemometrics).

## ACADEMIC DEGREES AND TITLES

- Full professor in Technical Sciences, President of Poland, Warsaw, Poland, 2016
- Habilitation (DSc) in Mining and Geo-Engineering (specialization in coal processing), Central Mining Institute, Poland, 2010
- Doctor of Chemistry, Institute of Physics, Silesian University, Katowice, Poland, 2004
- MSc in Chemistry, Institute of Physics, Silesian University, Katowice, Poland, 2000

## SCIENTIFIC POSITIONS AND MEMBERSHIPS

- Member of the European Strategy Forum on Research Infrastructures, ESFRI, Energy Thematic Working Group, European Commission
- Vice-President of the Scientific Association of Chemists of Polish Academy of Sciences, Katowice
- Member of the World Energy Council - Europe Task Force on the EU-Policy Framework 2030
- Member of ECCSEL ERIC Scientific Advisory Board
- Member of Polish Committee for Standardization (PKN)
- Editor-in Chief, Journal of Sustainable Mining (Elsevier)
- Visiting professor, Henan Polytechnic University, Jiaozuo, Henan, China
- Visiting Professor, Institute for Scientific and Technological Research of San Luis Potosi, IPICYT, Mexico
- Member of the Editorial Board of Sustainability – Open Access Journal, MDPI AG, Switzerland
- Member of the Editorial Board of Energy Science and Technology
- Member of the Editorial Board of International Journal of Mining Engineering and Mineral Processing

## HONOURS AND AWARDS

- Bronze Cross of Merit, the President of the Republic of Poland (2016)
- Budryk Award of the Division IV Technical Sciences of Polish Academy of Sciences for the habilitation monograph (2012)
- Scholarship of the Ministry of Science and Higher Education for distinguished young scientists (2011-2014)

## SELECTED PUBLICATIONS

1. Bak A., Kozik V., Walczak M., Fraczyk J., Kaminski Z., Kolesinska B., Smolinski A., Jampilek J., Towards Intelligent Drug Design System: Application of an Artificial Dipeptide Receptor Library in QSAR-Oriented Studies, *Molecules* 2018, 23, 1964; doi:10.3390/molecules23081964
2. Smolinski A., Howaniec N., Kuna-Gwoździewicz P., Chemometric exploration of the data concerning gases emitted from burning mine waste dump, The Role of Exergy in Energy and the Environment (Editors: Nizežić, Sandro, Papadopoulos, Agis), Springer, 2018, pp.473-483
3. Wojtacha-Rychter K., Smoliński A., Research on a gas index reflecting the sorption process on carbon materials in coal mines, *Sustainability* 2018, 10, 2468; doi:10.3390/su10072468
4. Pivnyak G., Dychkovskiy R., Bobyliv O., Cabana E.C., Smoliński A., Mathematical and Geomechanical Model in Physical and Chemical Processes of Underground Coal Gasification, *Solid State Phenomena* 277 (2018) 1-16, doi: 10.4028/www.scientific.net/SSP.277.1
5. Wojtacha-Rychter K., Smoliński A., Multi-component gas mixture transport through porous structure of coal, *Fuel* 233 (2018) 37-44
6. Howaniec N., Smoliński A., Porous structure properties of *Andropogon Gerardii* derived carbon materials, *Materials* 2018, 11, 876; doi:10.3390/ma11060876
7. Jorge L. González-Escobar, Alicia Grajales-Lagunes, Adam Smoliński, Antonio De León-Rodríguez, Ana P. Barba de la Rosa, Microbiota of edible *Liometopum apiculatum* ant larvae reveals potential functions related to their nutritional value, *Food Research International*, 109 (2018) 497-505
8. Wojtacha-Rychter K., Smoliński A., The interactions between coal and multi-component gas mixtures in the process of coal self-heating at different various temperatures ranges: an experimental study, *Fuel*, 213 (2018) 150-157
9. Smoliński A., Howaniec N., Bąk A., Utilization of energy crops and sewage sludge in the process of co-gasification for sustainable hydrogen production, *Energies* 2018, 11, 809; doi:10.3390/en11040809
10. Więckol-Ryk A., Krzemień A., Smoliński A., Lasheras F.S., Influence of wet flue gas desulfurization on amine based absorption plant for CO<sub>2</sub> removal, *Sustainability*, 2018, 10(4), 923; doi:10.3390/su10040923
11. Howaniec N., Kuna-Gwoździewicz P., Smoliński A., Assessment of emission of selected gaseous components from coal processing waste storage site, *Sustainability*, 2018, 10, 744; doi:10.3390/su10030744
12. Djaković Sekulić T., Smolinski A., Mandić A., Lazić A., Chromatographic and in silico assessment of logP measures for new spirohydantoin derivatives with anticancer activity, *Journal of Chemometrics*, 2018;32:e2991, DOI: 10.1002/cem.2991
13. Howaniec N., Smoliński A., Porous structure of bituminous coal, lignite and biomass carbonized at high pressure and temperature - Chemometric study, *Energies* 2017, 10, 1457; doi:10.3390/en10101457
14. Dudzińska A., Howaniec N., Smoliński A., Effect of coal grain size on sorption capacity with respect to propylene and acetylene, *Energies*, 2017, 10, 1919; doi:10.3390/en10111919
15. Howaniec N., Smoliński A., Biowaste utilization in the process of co-gasification with hard coal and lignite, *Energy* 118 (1) (2017) 18-23
16. Fugiel A., Burchart-Korol D., Czaplicka-Kolarz K., Smoliński A., Environmental impact assessment of mining and quarrying sector in European countries, *Journal of Cleaner Production*, 143 (2017) 159-168
17. Smoliński A., Howaniec N., Chemometric modelling of experimental data on co-gasification of bituminous coal and biomass to hydrogen-rich gas, *Waste and Biomass*

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18. Djaković-Sekulić T., Smoliński A., RP-HPTLC data in correlation studies of a 5-arylidene-2,4-thiazolidinedione derivatives, *Journal of Chromatographic Science*, 55 (5) (2017) 564-570
  19. Bak A., Kozik V., Smoliński A., Jampilek J., In silico estimation of basic activity-relevant parameters for a set of drug absorption promoters, SAR and QSAR in *Environmental Research*, 28 (2017), 427-449
  20. Słowiński G., Smoliński A., Thermodynamic feasibility of pure hydrogen storage and production in iron and germanium based double chemical looping process, *Journal of the Brazilian Chemical Society*, 28(6) (2017) 1098-1105
  21. Śliwińska A., Burchart-Korol D., Smoliński A., Environmental life cycle assessment of methanol and electricity co-production system based on coal gasification technology, *Science for the Total Environment*, 574 (2017), 1571-1579
  22. Janoszek T., Smoliński A., Stańczyk K., Modelling test of autothermal gasification process using CFD, *Archives of Mining Sciences*, 2(62) (2017) 253-268
  23. Smoliński A., Stempin M., Howaniec N., Determination of Rare Earth Elements in Combustion Ashes from Selected Polish Coal Mines by Wavelength Dispersive X-ray Fluorescence Spectrometry, *Spectrochimica Acta Part B: Atomic Spectroscopy*, 116 (2016) 63-74
  24. Burchart-Korol D., Krawczyk P., Czaplicka-Kolarz K., Smoliński A., Eco-efficiency of underground coal gasification (UCG) for electricity production, *Fuel* 173 (2016) 239–246
  25. Rompański P., Smoliński A., Krztoń H., Gazdowicz J., Howaniec N., Róg L., Determination of mercury content in hard coal and fly ash using X-ray diffraction and scanning electron microscopy coupled with chemical analysis, *Arabian Journal of Chemistry*, 10.1016/j.arabjch.2016.02.016, <http://dx.doi.org/10.1016/j.arabjch.2016.02.016>
  26. Smoliński A., Howaniec N., Co-gasification of coal/sewage sludge blends to hydrogen-rich gas with the application of the simulated high temperature reactor excess heat, *International Journal of Hydrogen Energy*, 41 (2016), 8154-8158
  27. Djaković Sekulić T., Božin B., Smolinski A., Chemometric study of biological activities of 10 aromatic Lamiaceae species' essential oils, *Journal of Chemometrics*, 30(4) (2016), 188-196
  28. Krzemiński A., Więckol-Ryk A., Smoliński A., Koteras A., Więclaw-Solny L., Assessing the risk of corrosion in amine-based CO<sub>2</sub> Capture Process, *Journal of Loss Prevention in the Process Industries*, 43 (2016) 189-197
  29. Urych B., Smoliński A., Kinetics of Sewage Sludge Pyrolysis and Air Gasification of Its Chars, *Energy & Fuels*, 30(6) (2016), 4869-4878
  30. Smoliński A., Howaniec N., Quantitative modelling of trace elements in hard coal, *PLoS ONE* 11(7): e0159265. doi:10.1371/journal.pone.0159265
  31. Smoliński A., Drobek L., Dabek V., Bak A., Experimental study of trace elements and organic pollution on the mine waste dumps from Polish and Czech Republic Silesian Region, *Chemosphere*, 162 (2016) 189-198
  32. Bak A., Kozik V., Smoliński A., Jampilek J., Multidimensional (3D/4D-QSAR) probability-guided pharmacophore mapping: Investigation of activity profile for a series of drug absorption promoters, *RSC Advances*, 6 (2016) 76183–76205
  33. Słowiński G., Smoliński A., Thermodynamic feasibility of hydrogen rich gas production supported by iron based chemical looping process, *Journal of Chemistry*, Volume 2016 (2016), Article ID 1764670, <http://dx.doi.org/10.1155/2016/1764670>
  34. Krawczyk P., Howaniec N., Smoliński A., Economic efficiency analysis of substitute natural gas (SNG) production in steam gasification of coal with the utilization of HTR excess heat, *Energy*, 114 (2016) 1207-1213
  35. Smoliński A., Kuna-Gwoździwicz P., Łączny M.J., Bąk A., Study of the polycyclic aromatic hydrocarbons content in gas released from burning mine waste dump, *Acta Chromatographica*, 27(2) (2015), 239-254
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  43. Bak A., Wyszomirski M., Magdziarz T., Smolinski A., Polanski J., Structure-based modeling of dye-fiber affinity with SOM-4D-QSAR paradigm: Application to set of anthraquinone derivatives, *Combinatorial Chemistry & High Throughput Screening*, DOI: CCHTS-EPUB-59047
  44. Smoliński A., Djaković-Skulic T., Chemometric study of retention indices of some thiazolidinediones derivatives in two low polarity stationary phases, *Combinatorial Chemistry & High Throughput Screening*, DOI: 10.2174/1386207317666140509102101
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  46. Howaniec N., Smoliński A., Influence of fuel blend ash components on steam co-gasification of coal and biomass – Chemometric study, *Energy*, 78 (2014) 814–825
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  51. Nikolic K., Filipic S., Smoliński, A., Kalisz R., Agbaba D., Partial Least Square and Hierarchical Clustering in ADMET Modeling: Prediction of Blood – Brain Barrier Permeation of  $\alpha$ -Adrenergic and Imidazoline Receptor Ligands, *Journal of Pharmacy and Pharmaceutical Sciences*, 16(4) (2013) 622-647
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  56. Wiatowski M., Stanczyk K., Świądrowski J., Kapusta K., Cybulski K., Krause E., Grabowski J., Rogut J., Howaniec N., Smoliński A., Semi-technical UCG by the shaft method in experimental mine "Barbara", *Fuel* 99 (2012) 170–179
  57. Nikolic K., Pavlovic M., Smolinski A., Agbaba D., The Chemometric Study and Quantitative Structure Retention Relationship modeling of Liquid Chromatography separation of Ziprasidone components, *Combinatorial Chemistry & High Throughput Screening*, 2012, 15, 730-744
  58. Smoliński A., Stańczyk K., Kapusta K., Howaniec N., Chemometric Study of the Ex Situ Underground Coal Gasification Wastewater Experimental Data, *Water, Air, & Soil Pollution: Volume* 223(9) (2012), 5745-5758
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  61. Howaniec N., Smoliński A., Steam gasification of energy crops of high cultivation potential in Poland to hydrogen-rich gas, *International Journal of Hydrogen Energy*, 36 (2011) 2038-2043
  62. Smoliński A., Howaniec N., Stańczyk K., A comparative experimental study of biomass, lignite and hard coal steam gasification, *Renewable Energy*, *Renewable Energy* 36 (2011), 1836-1842
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65. Howaniec N., Smoliński A., Stańczyk K., Pichlak M., Steam co-gasification of coal and biomass as an innovative way of hydrogen-rich gas production, *International Journal of Hydrogen Energy*, 36 (2011) 14455-14463
66. Smoliński A., Stańczyk K., Howaniec N., Steam gasification of selected energy crops in a fixed bed reactor, *Renewable Energy*, 35 (2010) 397-404
67. Smoliński A., Niekonwencjonalne metody wykorzystania węgla kamiennego dla otrzymania gazu bogatego w wodór, Katowice, Prace Naukowe GIG, (2010)
68. Djaković-Sekulić T., Smoliński A., Chemometric characterization of s-triazine derivatives in relation to structural parameters and biological activity, *Drug Development and Industrial Pharmacy*, 36(8), (2010), 954-961
69. Smoliński A., Howaniec N., Environment Friendly Coal Processing Technologies for Sustainable Development of Polish Energy Sector, *Ecological Chemistry and Engineering S*, 17(3) (2010), 297-307
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71. Smoliński A., Pichlak M., Innovation in Polish industry: the cluster concept applied to clean coal technologies in Silesia, *Technology in Society*, (2009) 31(4), 356-364
72. Smoliński A., Howaniec N., Sustainable production of clean energy carrier - hydrogen, *Ecological Chemistry and Engineering S*, 2009, Vol.16, no.3, 335-345
73. Smoliński A., Laboratory Scale Tests of Coal-Based Hydrogen Production with CO<sub>2</sub> Capture in the Aspect of Clean Coal Technologies, *International Journal of Global Warming*, Vol. 1(1-3), 2009. 227-237
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81. Lewin I., Smoliński A., Rare, threatened and alien species in the gastropod communities in clay pit ponds in relation to the environmental factors, *Biodiversity and Conservation*, 15(11) (2006) 3617-3635
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