Institute of Physical Chemistry PAN

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Research Scientist

Chem.Eng., 1995 **-** Warsaw University of Technology (WUT), Poland.
M.Sc. in Catalysis and Organic Technology, 1997- WUT, Poland.
Ph.D. in Catalysis and Materials Science, 2004 - WUT, Poland.
(more biographical details at Who's Who in the World, Handbook 29th Edition and at 2000 Outstanding Intellectuals of the 21st Century, 7th Edition, IBC, Cambridge, UK).

Additional Education and Training:

- **2006-2009** Postdoctoral Research Associate (Staff), Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles (USA). Mentors: Distinguished Professor **George A. Olah (Nobel Prize in Chemistry**, 1994) and Professor G.K. Surya Prakash.
- **2005-2006** Postdoctoral Research Associate, Department of Organic Chemistry, University of Córdoba (Spain). Mentor: Professor José M. Marinas Rubio.
- **2004** Professor-Researcher, director of the engineer's thesis, participating in the Committee of the Thesis, Chemical Engineering Department, University of América, Bogotá (Colombia)
- Certificates in: Project Management, Supervision and Human Resource Management from the University of Southern California (USA).
- Certificates in Science Communication I and II, sponsored by European Commission FP7 in collaboration with ESConet.

Professional affiliations:

- Member of the Polish Chemical Society and the Polish Club of Catalysis.
- Member of the American Nano Society.
- Member of the Biowaste Industrial Symbiosis network ("the BIS").

Important Research Founding Sources:

- European Commission, Marie Skłodowska-Curie International Reintegration Grant FP7. Project No. 256283.
- Science National Center of Poland, Project No. 2011/01/B/ST5/03888

Current Research Activities:

- Materials Science and Engineering: synthesis-characterization-applications of novel nano-(photo)-catalysts,
- Ultrasound and Microwave methods for nanomaterials synthesis and water purification,
- Heterogeneous Photocatalysis in: Green Chemistry, Organic Synthesis, H_2 Production,
- (Photo)Catalytic conversion of 2nd Generation Biomass into Platform Chemicals,
- CH_4/CO_2 utilization,
- Artificial photosynthesis,
- Green (Bio)Fuels and their catalytic combustion,
- Catalysis in Petrochemical Industry,
- Mechanisms of (super)acid-(super)base catalysis,
- Synthesis of Natural Products (Alkaloids and Aminoacids),
- (Photo)Catalysis as a Medical Tool in Cancer Therapy.

Selected Dissemination/Socialization Activities for Science and Research

- http://www.colciencias.gov.co/noticias/en-busca-de-futuras-colaboraciones
- http://www.uninorte.edu.co/noticias_uninorte/secciones.asp?ID=1202
- http://www.alphagalileo.org/ViewItem.aspx?ItemId=116129&CultureCode=en
- http://www.mariecurie2011.pl/images/page.ashx?path=166%2f167%2f5185
- http://www.tvn24.pl/-1,1732159,0,1,alternatywy-dla-benzyny-sok--a-moze-mleko,wiadomosc.html

Selected Publications:

1. *High-value chemicals obtained from selective photo-oxidation of glucose in the presence of nanostructured titanium photocatalysts*, Juan C. Colmenares , A. Magdziarz, A. Bielejewska. *Bioresource Technology* 102 (2011) 11254-11257.

2. *Influence of the strong metal support interaction effect (SMSI) of Pt/TiO_2 and Pd/TiO_2 systems in the photocatalytic biohydrogen production from glucose solution*, Juan C. Colmenares, A. Magdziarz, M.A. Aramendia, A. Marinas, J.M. Marinas, F.J. Urbano, J.A. Navio. *Catalysis Communications* 16 (2011) 1–6.

3. "Catalysis: Principles, Types and Applications". Editor: Minsuh Song, ISBN: 978-1-61209-654-4. Nova Science Publishers, Inc. New York, 2011. pp. 101-165 Chapter title: *"Activation of heterogeneous nanocatalysts by solar light: principles, synthesis and applications"* . Juan C. Colmenares Q.

4. *The effect of copper and gold on the catalytic behavior of nickel/alumina catalysts in hydrogen-assisted dechlorination of 1,2-dichloroethane*, W. Juszczyk, J.C. Colmenares, A. Srębowata, Z. Karpiński, *Catalysis Today* 169 (2011) 186-191.

5. *Titania nano-photocatalysts synthesized by ultrasound and microwave methodologies: application in depuration of water from 3-chloropyridine*, J.C. Colmenares, M.A. Aramendia, A. Marinas, J.M. Marinas, F. J. Urbano*, Journal of Molecular Catalysis A: Chemical* 331 (2010) 58–63.

6. *Novel trends in the utilization of CO_2 as a reagent and mild oxidant in the C-C coupling reactions,* J.C. Colmenares, *Current Organic Synthesis*, 7(6) (2010) 533-542.

7. *Application of the geared turbofan with constant volume combustor on short-range aircraft: a feasibility study,* F. Colmenares, R. Brink, S. Ogaji, P. Pilidis, J.C. Colmenares, A. García, *Journal of Engineering for Gas Turbines and Power*, Vol. 132 (Issue 6) June 2010.

8. *Poly(4-vinylpyridine) catalyzed hydrolysis of methyl bromide to methanol and dimethyl ether*, J.C. Colmenares, P.T. Batamack, T. Mathew, G.K.S. Prakash, G.A. Olah, *Journal of Molecular Catalysis A: Chemical* 310 (2009) 180–183 (**Editor's Choice**).

9. *Poly(4-vinylpyridine) catalyzed selective methanolysis of methyl and methylene bromides,* J.C. Colmenares, P.T. Batamack, T. Mathew, G.K.S. Prakash, G.A. Olah, *Tetrahedron Letters* 50 (2009) 6016-6018.

10. *Chemical trapping studies to the determination of surface species under reaction conditions for the catalytic side-chain oxidative alkylation of toluene by methane*, J.C. Colmenares, J. Kijenski, E.B. Arévalo-García, *Journal of Molecular Catalysis A: Chemical* 309 (2009) 21–27.

11. *Nanostructured Photocatalysts and Their Applications in the Photocatalytic Transformation of Lignocellulosic Biomass: An Overview* J.C. Colmenares, R. Luque, J.M. Campelo, F. Colmenares, Z. Karpinski, J.M. Marinas, A.A. Romero, *Materials* 2(4), (2009) 2228-2258.

12. *Modification of the photocatalytic activity of Pd/TiO_2 and Zn/TiO_2 systems through different redox treatments,* M.A. Aramendía, J.C. Colmenares, A. Marinas, J.M. Marinas, J.A. Navío, F.J. Urbano, *Applied Catalysis B: Environmental* 80 (2008) 88-97.

13. *A versatile synthesis of (+)deoxoprosopinine and (-)deoxoprosophylline*, E.B. Arévalo-García, J.C. Colmenares, *Tetrahedron Letters* 49 (2008) 6972-6973.

14. *Screening of different zeolite-based catalysts for gas-phase selective photooxidation of propan-2-ol,* M.A. Aramendía, J.C. Colmenares, S. López-Fernández, A.Marinas, J.M. Marinas, F.J. Urbano, *Catalysis Today* 129 (2007) 102-109.

15. *Synthesis, characterization and photocatalytic activity of different metal-doped titania systems,* J.C. Colmenares, M.A. Aramendía, A. Marinas, J.M. Marinas, F.J. Urbano., Applied Catalysis: A 306 (2006) 120-127 (**90+ citations**).