Name: Sergiu Coseri
Senior Researcher – "Petru Poni" Institute of Macromolecular Chemistry of Romanian Academy Iasi

Curriculum Vitae

Orcid qr code:

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ORCID.ORG/0000-0002-8993-5552

PERSONAL DATA

Date and Place of Birth: July 14th 1967 in Siretel, Iasi, Romania
Married, Romanian (Nationality)

Research expertise: Developing of new catalytic systems for the selective derivatization of organic substrates (**especially polysaccharides**) in mild and "*ecofriendly*" environment; free radical processes involving *N*-hydroxyphthalimide (NHPI); chemical characterization of biopolymers; nanostructured polysaccharides, nanoparticles for the use in (bio) medical applications as sensors and for drug delivery systems. Organic chemistry; Physical organic chemistry,

WORK EXPERIENCE

October 1992 - present

"Petru Poni" Institute of Macromolecular Chemistry Iasi, (ICMPP) Romania - Natural Polymers Department
Deputy Head of the Natural Polymers Department, since July 2011
1992-1998 Research Assistant
1998-2006 Scientific Researcher
2007-November 2014 Scientific Researcher III
November 2014-January 2019 Scientific Researcher II
January 2019-present Scientific Researcher I
Romanian Academy research institute (> 250 employers)

Research areas: developing of new organic chemistry routes for selective oxidation of polysaccharides; new catalysts for selective organic transformations; chemical characterization of organic compounds by using FTIR, GC-MS.
Responsibilities: scientific direction and management of research projects (European, academic and industrial), supervising PhD students and early stage postdocs.

October 1991 - September 1992

"Petru Rares" School, Harlau, Iasi, Romania
- Chemistry teacher for college students

EDUCATION

August 2016

Romanian Academy
Habilitation Thesis; Title: Nitroxyl radicals mediated functionalization of biopolymers: from synthesis to application
Conferirea titlului, conform **OMENCS nr.4830/11.08.2016**

June 2010 - March 2013

"Petru Poni" Institute of Macromolecular Chemistry Iasi, (ICMPP) Romania

Postdoctoral Fellow

- Postdoctoral Fellowship Grant, European Social Fund – "Cristofor I. Simionescu" Postdoctoral Fellowship Programme (ID POSDRU/89/1.5/S/55216), Sectorial Operational Programme Human Resources Development 2007-2013. "Petru Poni" Institute of Macromolecular Chemistry Iasi, Romania.

November 2005 - October 2008 **"Petru Poni" Institute of Macromolecular Chemistry Iasi, (ICMPP) Romania**

NATO Return Fellow

- Return Fellow, NATO Reintegration Grant, Award received from NATO, Grant code: PDD(CP)-(CBP.EAP.RIG 982044)
- Supervisor: Prof. Bogdan Simionescu

June 2003 - June 2005 **National Research Council Ottawa, Canada**

Visiting Fellow at the Canadian Government Laboratory

- Award received from Natural Sciences and Engineering Research Council of Canada, Canada.
- Supervisor: Dr. Keith U. Ingold.

April 2002 – May 2003 **Queen's University Kingston, Canada**

Postdoctoral Fellow

- Supervisor: Prof. Gregory Thatcher and Dr. Keith Ingold

November 1994 - May 2001 **"Ghe. Asachi" Technical University Iasi and "Petru Poni" Institute of Macromolecular Chemistry Iasi, Romania**

PhD in Chemical Sciences

- PhD thesis: Isocyanate chemistry (In Romanian "Chimia izocianatilor")
- Supervisor: Dr. Adrian A. Caraculacu

October 1986 – June 1991 **"Ghe. Asachi" Technical University Iasi, Romania**

Engineer diploma (MSc)

- Industrial Chemistry Faculty, Organic Chemistry department

SELECTED AWARDS AND MEMBERSHIPS

2015 – "*Costin D. Nenitescu*" prize of the Romanian Academy
2006 – Member of the EPNOE (European Polysaccharide Network of Excellence)

EDITORIAL ACTIVITY

2012 – Present; Member of Editorial Board of:

- *Chemical Engineering and Science*
- *American Journal of Physical Chemistry*
- *ISRN Textiles*
- *Journal of Materials Science and Engineering with Advanced Technology*
- *Journal of Composites and Biodegradable Polymers*
- *Modern Chemistry*

INVITED REFEREE

Since 2005 **International Journals**

- Carbohydrate Polymers
- Organic Letters
- Biomacromolecules
- Cellulose

PERSONAL SKILLS AND COMPETENCIES

Languages	**Romanian**	native
	English	fluent
	French	beginner
IT - Skills	Windows 9x/2000/XP/NT/Vista/7, Microsoft Office, Lotus Notes, Corel Draw, Design Expert V6, EndNote X4, OriginLab 7.5 und SPSS	
Miscellaneous Interests	Travel, literature, scrabble (top 10 Romanian players), sport (jogging, tennis)	

RESEARCH GRANTS

- **2017-2019**: PN-III-P4-ID-**PCE-2016-0349**; Ingineria materiilor prime naturale: biointerfete pe baza de celuloza pentru detectia de proteine, Acronim: ERAW;
  Budget: 825,000 lei.
  Project director

- **2012-2014**: Cellulose fibers oxidation using environmentally friendly reagents - Synthesis of various sorts of oxidized cellulose, using different reaction conditions – Industrial project between "**Petru Poni"** Institute and **Innventia SA Stockholm**, Sweden.
  Budget: 120,000 SEK.
  Project manager
- **2012-2014**: Co-operation of SEE science parks for the promotion of transnational market update of R&D results and technologies by SMEs, **SEETechnology - SEE/D/0224/1.2/X**.
  Budget: 2,046,667 Euro
  Project manager
- **2011-2013**: Strengthening the Romanian research capacity in Multifunctional Polymeric, **STREAM, ID 264115**, **2011-2013**
  Budget: 4,500,00 Euro
  Project leader
- **2005-2010 : Polysaccharides Grant – EPNOE**
  NMP3-CT-2005-500375
  Budget: 400,000 euro
  Key member team
- **2005-2007: NATO Security Through Science Programme**, **NATO Reintegration Grant,** "Progresses in Free Radical Reactions Mechanism"; PDD(CP)-(CBP.EAP.RIG 982044)
  Budget: 25,000 USD
  Project manager

MAJOR COLLABORATIONS

- Prof. Tatiana Budtova, Centre de Mise en Forme des Materiaux Sophia Antipolis, France, Project title: "*Study of polysaccharides solutions behavior*". .
- Prof. Volker Ribitsch and Prof. Stefan Spirk; Graz University, Department of Organic Chemistry, Austria. Project title: "*Adsorption of cellulose thin films on PET monitored by QCM-D*"
- Prof. Karin Stana-Kleinschek and Prof. Simona Strnad; Laboratory for Characterization and Processing of Polymers, Faculty of Mechanical Engineering, University of Maribor, Smetanova 17, SI-2000 Maribor, Slovenia. Project title: "*Cellulose chemical functionalization using new nitroxyl radicals as mediators*".
- Prof. Tim Lindstrom, Innventia AB Stockholm, Sweden; Project title: "*Cellulose fibers oxidation using environmentally friendly reagents - Synthesis of various sorts of oxidized cellulose, using different reaction conditions"*

PUBLICATIONS (SELECTION)

- G. Biliuta, **S. Coseri***
  Cellulose: A ubiquitous platform for ecofriendly metal nanoparticles preparation
  Coordination Chemistry Reviews, 383, 155-173, **2019**. **IF = 13.476.**
- M. Bercea, G. Biliuta, M. Avadanei, R. I. Baron, M. Butnaru, **S. Coseri***, Self-healing hydrogels of oxidized pullulan and poly(vinyl alcohol), *Carbohydrate Polymers*, 206, 210-219, **2019. IF = 6.044.**
- **S. Coseri***, G. Biliuta, B. C. Simionescu, Selective oxidation of cellulose, mediated by N-hydroxyphthalimide, under metal-free environment, *Polymer Chemistry*, 9, 961-967, **2018. IF = 4.76.**
- **S. Coseri***, Cellulose: To depolymerize… or not to?, *Biotechnology Advances*, **2017**, 35(2), 251-266. **IF = 12.831.**
- D.F. Apopei Loghin, G. Biliuta, **Sergiu Coseri**, E.S. Dragan, Preparation and characterization of oxidized starch/poly(N,N-dimethylaminoethyl methacrylate) semi-IPN cryogels and in vitro controlled release evaluation of indomethacin, *International Journal of Biological Macromolecules*, **2017**, 96, 589-599. **IF = 4.478.**
- G. Biliuta, **S. Coseri**, Magnetic cellulosic materials based on TEMPO-oxidized viscose fibers, *Cellulose*, **2016**, 23(6), 3407-3415. **IF = 3.917.**
- L. Sacarescu, M. Simionescu, G. Sacarescu, **S. Coseri,** Transparent and fluorescent thin films of polysilane–SiQD nanocomposite: cellulose acetate, *Cellulose*, **2016**, 23(6), 3847-3860. **IF = 3.917.**
- **S. Coseri***, M. Bercea, V. Harabagiu, T. Budtova, Oxidation vs. degradation in polysaccharides: Pullulan – A case study, *European Polymer Journal*, **2016**, 85, 82-91. **IF = 3.741.**
- **S. Coseri***, G. Biliuta, L. Fras-Zemljic, J. Stevanic Srndovic, T. Larsson, S. Strnad, T. Kreze, A. Naderi, T. Lindstrom, One-shot carboxylation of microcrystalline cellulose in the presence of nitroxyl radicals and sodium periodate, *RSC Advances*, **2015,** *5*, 85889-8589. **IF = 3.049.**
- D. Breitwieser, M. Kriechbaum, H. M.A. Ehmann, U. Monkowius, **S. Coseri**, L. Sacarescu, S. Spirk, Photoreductive generation of amorphous bismuth nanoparticles using polysaccharides – Bismuth-cellulose nanocomposites, *Carbohydrate Polymers*, **2014**, *116*, 261-266. **IF = 6.044**.
- **S. Coseri,** A. Spatareanu, L. Sacarescu, C. Rimbu, D. Suteu, S. Spirk, V. Harabagiu, Green synthesis of the silver nanoparticles mediated by pullulan and 6-carboxypullulan, *Carbohydrate Polymers*, **2014**, *116*, 9-17. **IF = 6.044.**
- A. Spatareanu, M. Bercea, T. Budtova, V. Harabagiu, L. Sacarescu, **S. Coseri**. Synthesis, characterization and solution behaviour of oxidized pullulan, *Carbohydrate Polymers*, **2014**, *111*, 63-71, **IF = 6.044.**
- **S. Coseri***, A. Doliska, K. Stana-Kleinschek; Immobilization of Water-Soluble 6-Carboxylcellulose on Poly(ethylene terephthalate) Films Monitored by a Quartz Crystal Microbalance with Dissipation. *Industrial and Engineering Chemistry Research*, **2013**, *52*(22), 7439-7444, **IF = 3.141.**
- **S. Coseri***, G. Biliuta, B. C. Simionescu, K. Stana-Kleinschek, V. Ribitsch, V. Harabagiu, Oxidized cellulose - Survey of the most recent achievements. *Carbohydrate Polymers*, **2013**, *93*(1), 207-215. **IF = 6.044.**
- G. Biliuta, L. Fras, M. Drobota, Z. Persin, T. Kreze, K. Stana-Kleinschek, V. Ribitsch, V. Harabagiu, **S. Coseri**, Comparison study of TEMPO and phthalimide-N-oxyl (PINO) radicals on oxidation efficiency toward cellulose; *Carbohydrate Polymers*, **2013**, *91*(2), 502-507. **IF = 6.044.**
- **S. Coseri***, G. Biliuta, Bromide-free oxidizing system for carboxylic moiety formation in cellulose chain. *Carbohydrate Polymers*, **2012**, *90*, 1415-1419. **IF = 6.044.**
- **S. Coseri***, G. Nistor, L. Fras, S. Strnad, V. Harabagiu, B. C. Simionescu, Mild and Selective Oxidation of Cellulose Fibers in the Presence of *N*-Hydroxyphthalimide. *Biomacromolecules*, **2009**, *10*(8), 2294-2299. **IF = 5.667.**
- **S. Coseri***, Phthalimide-*N*-oxyl (PINO) Radical, a Powerful Catalytic Agent; Its Generation and Versatility Towards Various Organic Substrates. *Catalysis Reviews*, **2009**, *51*(2), 218-292. **IF = 9.00**.
- **S. Coseri***, A New and Efficient Heterogeneous System for the Phthalimide-*N*-oxyl Radical (PINO) Generation. *European Journal of Organic Chemistry*, **2007**, 1725-1729. **IF = 3.029**.
- **S. Coseri**, G. David Mendenhall, K.U. Ingold, Mechanisms of reactions of Aminoxyl (Nitroxide), Iminoxyl, and Imidoxyl Radicals with Alkenes and Evidence that in the Presence of Lead Tetraacetate, N-Hydroxyphthalimide Reacts with Alkenes by Both Radical and Nonradical Mechanisms, *Journal of Organic Chemistry*, **2005**, *70*, 4629-4636. **IF = 4.745**.

- **S. Coseri**, K. Ingold, Distinguishing between Abstraction and addition as the First step in the Reaction of a Nitroxyl Radical with Cyclohexene. *Organic Letters*, **2004**, *6*(10), 1641-1643. **IF = 6.555**.
- A. A. Caraculacu, **S. Coseri**, Isocyanates in polyaddition processes. Structure and reaction mechanisms; *Progress in Polymer Science*, **2001**, *26*(5), 799-851. **IF = 24.505.**

RESEARCH MONOGRAPHS, CHAPTERS

- Thomas Heinze, Andreas Koschella, Tim Liebert, Valeria Harabagiu, **Sergiu Coseri**. Chapter 10: Cellulose: chemistry of cellulose derivatisation; in *The European Polysaccharide Network of Excellence (EPNOE) Research initiatives and results*. 283-327, Navard, Patrick (Ed.), Springer, ISBN 978-3-7091-0420-0, **2013**.

- **Sergiu Coseri** Chapter 4: "Reaction mechanisms and kinetic methods used to describe the uncatalyzed reaction between isocyanates and hydroxyl compounds" In *Recent Research Trends in Polymer Science*, Ed. Elena Scortanu, Published by Transworld Research Network; Transworld Research Network T.C. 37/661(2), Fort P.O., Trivandrum-695 023, Kerala, India, ISBN: 978-81-7859-427-1, **2009**.

INVITED PRESENTATIONS

1. **Sergiu Coseri,** Cellulose – sustainable material, Invited course on the workshop: "Sustainable materials and technologies" Maribor, Slovenia, March 2-6, **2015.**
2. **Sergiu Coseri**, Alina Spatareanu, Liviu Sacarescu, Cristina Rimbu, Valeria Harabagiu. The use of pullulan and 6-carboxyl pullulan for the silver nanoparticles formation 3rd EPNOE International Polysaccharide Conference, Nice, France, 21-24 October, **2013**.
3. **Sergiu Coseri**, Introduction of carboxyl moieties in cellulose chain by mimics natural occurring processes, Advances in Biomaterials**,** Viena, Austria, 12-16. 03. **2012**.
4. **Sergiu Coseri,** Physical and chemical cellulose surface modification**,** International Conference on Nanotechnology for the Forest Products Industry, St. Louis, Missouri, USA, June 25-27, **2008**.
5. **Sergiu Coseri**, Mechanisms of reaction of aminoxyl (nitroxide), iminoxyl and imidoxyl radicals with alkenes. Lecture la NRC Canada, Steacie Institute of Molecular Science, 100 Sussex Drive, K1N 0R6, Ottawa, April 5, **2005**.
6. **Sergiu Coseri**, A new method to distinguish between abstraction and addition as a first step of the cycloalkenes reaction with nitroxy radicals.
7. Lecture la NRC Canada, Steacie Institute of Molecular Science, 100 Sussex Drive, K1N 0R6, Ottawa, April 27, **2004**.
8. **Sergiu Coseri**, Reaction Mechanisms for Nitric Oxide Release from Nitrates. Lecture la NRC Canada, Steacie Institute of Molecular Science, 100 Sussex Drive, K1N 0R6, Ottawa, April 15, **2003**

INVITED PROFESSORSHIP

1. Laboratory for Characterization and Processing of Polymers Faculty for Mechanical Engineering, **University of Maribor**, Slovenia, March 2015, teaching course: *Cellulose – sustainable material.*
2. Faculty of Mathematics and Natural Science, Jan Dlugosz **University in Czestochowa**, Institute of Chemistry, Environment Protection and Biotechnology, Poland, April – May, 2017, Courses: i) *Chemistry and applications of biodegradable polymers* and ii) *Nanomaterials based on natural resources: a key strategy for a future sustainable development.*

PEER-REVIEW ACTIVITY

Expert Evaluator for Executive government agency of **National Science Centre Poland** (Narodowe Centrum Nauki - NCN; http://www.ncn.gov.pl).

Years: 2016 - to date for the following programs: OPUS, PRELUDIUM, SONATA

The National Science Centre supports basic research by funding research projects carried out by individual researchers and research teams, both on the domestic and international level, as well as doctoral fellowships and post-doctoral internships.

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