

Prof. ing. Paolo Colombo

Date of birth: December 10, 1960

Nationality: Italian



Education

- University of Padova, Padova, Italy, Chemical Engineering, Laurea Magna cum Laude, December 1985
- University of Padova, Padova, Italy, Glass Engineering, Diploma, December 1988

Appointments

- 2005-current, **Professor** of Materials Science and Technology, The University of Padova, Padova, Italy
- 2007-current, **Visiting Professor**, Dept. Mechanical Engineering, University College London, London, UK
- 2002-current, **Adjunct Professor** of Materials Science and Engineering, Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA
- 2016, Mercator Professor (DFG), Technical University Freiberg, Freiberg, Germany
- 2015, Visiting Professor, INSA (Institut National des Sciences Appliquées de Lyon), Lyon, France
- 1998-2005, Associate Professor of Materials Science and Technology, The University of Bologna, Bologna, Italy
- 1991-92, Fulbright Visiting Scholar, The Pennsylvania State University, University Park, PA
- 1990-98, Assistant Professor of Materials Science and Technology, The University of Padova, Padova, Italy
- 1987-89, Accademia dei Lincei Research Scholarship grantee, The University of Padova, Padova, Italy

Awards

- Academician of the World Academy of Ceramics (2006)
- Academician of the European Academy of Sciences – Materials Science Division (2016)
- Fellow of the American Ceramic Society (2010)
- Fellow of the Institute of Materials, Minerals and Mining (2011)
- Fellow of the European Ceramic Society (2017)
- Pfeil Award 2007 (The Institute of Materials, Minerals and Mining, London, UK)
- Global Star Award 2010 (The Engineering Ceramics Division of the American Ceramic Society)
- Edward C. Henry Award 2011 (The Electronics Division of The American Ceramic Society)
- Verulam Medal & Prize 2013 (The Institute of Materials, Minerals and Mining, London, UK)
- ACerS Global Ambassador Award 2016 (The American Ceramic Society)

Memberships

- Associazione Italiana di Ingegneria dei Materiali (since 1988)

- American Ceramic Society (since 1992)
- World Academy of Ceramics (since 2006)
- Italian Ceramic Society (since 2009)
- Institute of Materials, Minerals and Mining (since 2011)
- Materials Research Society (since 2013)
- European Academy of Sciences (since 2016)

Editorial boards

- Associate Editor, “Journal of the American Ceramic Society”, John Wiley & Sons, Inc., Hoboken, NJ, USA
- Associate Editorial Board, “Materials Letters”, Elsevier, Amsterdam, NL Member
- International Editorial Board, “Ceramics International”, Elsevier, Amsterdam,
- Editorial Board, “Journal of Porous Materials”, Springer Netherlands, Amsterdam, NL
- Principal editor, “Journal of Materials Research,” Cambridge University Press, Cambridge, UK
- Editorial Board, “Journal of Asian Ceramic Societies”, Elsevier, Amsterdam, NL
- Editorial Board, “Advances in Applied Ceramics: Structural, Functional and Bioceramics”, Maney Publishing, London, UK
- Editorial Board, “Journal of Ceramic Science and Technology”, GÖLLER Verlag, D
- Editorial Advisory Board, “Open Condensed Matter Physics Reviews”, Bentham Science Publishers, Bussum, NL
- Editorial Board, “International Journal of Advances in Materials Science and Engineering”, Wireilla Scientific Publications, Victoria, Australia
- Editorial Board, “Journal of Functional Materials” (2012), Chongqing Bureau of Publication of the General Administration of Press and Publication, PRC

Other Information

- Member of EPSRC (Engineering and Physical Sciences Research Council) Peer Review College (2006-2009; 2010-2013; 2014-2017)
- Member of the Faculty of the Graduate School of the College of Earth and Mineral Sciences, The Pennsylvania State University, University Park, PA
- 2012- current, Head of the PhD School in Industrial Engineering, The University of Padova, Padova, Italy
- 2008-2011, Head of the Undergraduate Studies Program in Materials Engineering, The University of Padova, Padova, Italy
- 2012- current, Member of the Strategic Advisory Board, Stazione Sperimentale del Vetro, Murano (Venice), Italy
- Member of the International Board of Advisors of the Young Ceramists Additive Manufacturing Forum (ECerS)
- Reviewer for >50 ISI journals
- Served in numerous committees of the American Ceramic Society
- Co-organizer of more than 90 symposia in the framework of international conferences
- He has given more than 40 invited talks in the field of porous ceramics and polymer-derived-ceramics

- h index: WOS (accessed on January 2, 2018): 40; Total Number of Citations: 5736; Average Citations per Item: 24.72.
- h index: Google Scholar (accessed on January 2, 2018): 50 (36 since 2013); Citations: 9604; i10 index: 165 (126 since 2013).

Research interests

His research interests include novel processing routes to porous glasses and ceramics (including Additive Manufacturing), the development of ceramic components (including bioceramics) from preceramic polymers and geopolymers, and the vitrification and reuse of hazardous industrial and natural waste.

Publications

Paolo Colombo published more than 230 papers in peer-reviewed journals, mostly ISI journals, 9 book chapters and holds 10 international patents. He is co-editor of a book on cellular ceramics, a book on polymer-derived-ceramics and 11 proceedings books. He has been Guest Editor of 6 special issues in ISI journals.

Selected papers

Review papers

1. P. Colombo, "In Praise of Pores," *Science*, **322** (2008) 381-383
2. P. Colombo, "Engineering Porosity in Polymer-Derived Ceramics," *J. Europ. Ceram. Soc.*, **28** (2008) 1389-1395.
3. P. Colombo, G. Mera, R. Riedel and G.D. Sorarù, "Polymer-Derived-Ceramics: 40 Years of Research and Innovation in Advanced Ceramics," *J. Am. Ceram. Soc.*, **93** (2010) 1805–1837.
4. P. Colombo, C. Vakifahmetoglu and S. Costacurta, "Fabrication of Ceramic Components with Hierarchical Porosity," *J. Mat. Sci.*, **45** (2010) 5425–5455.
5. P. Colombo and H.P. Degischer, "Highly Porous Metals and Ceramics," *Mater. Sci. Tech.*, **26** (2010) 1145-1158.
6. P. Colombo, E. Bernardo and G. Parciannello, "Multifunctional Advanced Ceramics from Preceramic Polymers and Nano-sized Active Fillers," *J. Europ. Ceram. Soc.*, **33** (2013) 453–469
7. P. Colombo, D. Dunand, V. Kumar, "Porous materials: Less is more," *J. Mater. Res.*, **28** (2013) 2187–2190.
8. E. Bernardo, L. Fiocco, G. Parciannello, E. Storti and P. Colombo, "Advanced Ceramics from Preceramic Polymers Modified at the Nano-Scale: A Review," *Materials*, **7** (2014), 1927-1956
9. A. Zocca, P. Colombo, C.M. Gomes, J. Guenster, "Additive Manufacturing of Ceramics: issues, potentialities and opportunities," *J. Am. Ceram. Soc.*, **98** (2015) 1983–2001.
10. C. Vakifahmetoglu, D. Zeydanli, P. Colombo, "Porous polymer derived ceramics," *Mat. Sci. Eng. R*, **106** (2016) 1-30

Foaming/filtering papers

1. C. Vakifahmetoglu, P. Colombo, E. Pippel and J. Woltersdorf, "Growth of 1D-Nanostructures in Porous Polymer Derived Ceramics by Catalyst-Assisted-Pyrolysis. Part I: Iron Catalyst," *J. Am. Ceram. Soc.*, **93** (2010) 959-968.

2. C. Vakifahmetoglu, P. Colombo, S. Carturan, E. Pippel and J. Woltersdorf, "Growth of 1D-Nanostructures in Porous Polymer Derived Ceramics by Catalyst-Assisted-Pyrolysis. Part II: Cobalt Catalyst," *J. Am. Ceram. Soc.*, **93** (2010) 3709–3719.
3. C. Vakifahmetoglu, V. Presser, S.-H. Yeon, P. Colombo, Y. Gogotsi, "Enhanced hydrogen and methane gas storage of silicon oxycarbide derived carbon," *Micro. Meso. Por. Mater.*, **144** (2011) 105-112
4. M. Fukushima, Y. Yoshizawa, P. Colombo, "Decoration of ceramic foams by ceramic nanowires via catalyst-assisted-pyrolysis of preceramic polymers," *J. Am. Ceram. Soc.*, **95** (2012) 3071–3077
5. M. Adam, C. Vakifahmetoglu, P. Colombo, M. Wilhelm, G. Grathwohl, "Polysiloxane-Derived Ceramics Containing Nanowires with Catalytically Active Tips," *J. Am. Ceram. Soc.*, **97** (2014) 959–966.
6. M. Strozi Cilla, M.R. Morelli, P. Colombo, "Geopolymer Foams by Gelcasting," *Ceram. Inter.*, **40** (2014) 5723–5730
7. M. Strozi Cilla, P. Colombo, M.R. Morelli, "Effect of process parameters on the physical properties of porous geopolymers obtained by gelcasting," *Ceram. Inter.*, **40** (2014) 13585–13590.
8. M. Strozi Cilla, M.R. Morelli, P. Colombo, "Open cell geopolymer foams by a novel saponification/peroxide/gelcasting combined route," *J. Europ. Ceram. Soc.*, **34** (2014) 3133–3137.
9. D. Li, E. Guzi de Moraes, P. Colombo, and Z. Shen, "Preparation of nasal cavity-like SiC-Si₃N₄ foams with hierarchical pore architecture," *RSC Adv.*, **5** (2015) 27891-27900.
10. M.D.M. Innocentini, J.R. Coury, M. Fukushima and P. Colombo, "High-efficiency aerosol filters based on silicon carbide foams decorated with ceramic nanowires," *Separ. Purif. Tech.*, **152** (2015) 180–191

Additive Manufacturing papers

1. A. Zocca, P. Colombo, J. Guenster, T. Muehler, "Selective laser densification of lithium aluminosilicate glass ceramic tapes," *Appl. Surf. Sci.*, **265** (2013) 610–614
2. A. Zocca, E. Bernardo, P. Colombo, C.M. Gomes, J. Guenster, "LAS Glass-Ceramic Scaffolds by Three-Dimensional Printing," *J. Europ. Ceram. Soc.*, **33** (2013) 1525–1533
3. A. Zocca, C.M. Gomes, J. Guenster, A. Staude, E. Bernardo and P. Colombo, "SiOC ceramics with ordered porosity by 3D-printing of a preceramic polymer," *J. Mater. Res.*, **28** (2013) 2243–2252.
4. A. Zocca, H. Elsayed, E. Bernardo, C.M. Gomes, M.A. Lopez-Heredia, C. Knabe, P. Colombo and J. Günster, "3D-printing of silicate bioceramics using a preceramic polymer as non-sacrificial, reactive binder," *Biofabr.*, **7** (2015) 025008 (12 pages).
5. G. Franchin and P. Colombo, "Porous geopolymer components through inverse replica of 3D printed sacrificial templates," *J. Ceram. Sci. Tech.*, **6** (2015) 105-112.
6. A. Zocca, P. Colombo, C.M. Gomes, J. Guenster, "Additive Manufacturing of Ceramics: issues, potentialities and opportunities," *J. Am. Ceram. Soc.*, **98** (2015) 1983–2001.
7. J. Klein, M. Stern, G. Franchin, M. Kayser, C. Inamura, S. Dave, J. Weaver, P. Houk, P. Colombo, M. Yang and N. Oxman, "Additive Manufacturing of Optically Transparent Glass," *3D Print. Add. Manuf.*, **2** (2015) 92–105.
8. E. Zanchetta, M. Cattaldo, G. Franchin, M. Schwentenwein, J. Homa, G. Brusatin and Paolo Colombo "Stereolithography of SiOC Ceramic Microcomponents," *Adv. Mater.*, **28** (2016) 370-376.

9. P. Colombo, J. Schmidt, G. Franchin, A. Zocca and J. Guenster, “Additive Manufacturing of Ceramics using Preceramic Polymers,” *Bull. Am. Ceram. Soc.*, **96** (2017) 16–23

Selected Invited and Plenary talks

1. “Designing Porosity in Polymer-Derived-Ceramics,” 3rd International Congress on Ceramics (ICC-3), 14-18 November 2010, Osaka, Japan
2. “Novel Developments and trends in Porous Ceramics,” 4th International Congress on Ceramics (ICC-4), 14-18 July 2012, Chicago, USA
3. “Highly Porous Ceramics from Preceamic Polymers,” 8th International Conference on High-Performance Ceramics (CICC-8), 4-7 November 2013, Chongqing, China.
4. “Advanced Ceramics from Preceramic Polymers and Fillers,” Plenary speaker, DKG-Annual Meeting 2014, Symposium on High-performance Ceramic, 24-26 March 2014, Clausthal-Zellerfeld, Germany
5. “Geopolymer Foams with Hierarchical Porosity,” Cellular Materials 2014, 22-24 October 2014, Dresden, Germany.
6. “Additive Manufacturing with Preceramic Polymers,” 40th International Conference and Expo on Advanced Ceramics and Composites (ICACC-40), January 26-29, 2016, Daytona Beach, FL, USA.
7. “Additive Manufacturing of Ceramics using Inorganic Polymers”, 10th International Conference on High-Performance Ceramics (CICC-10), November 4 - 7, 2017, Nanchang, China
8. “Additive Manufacturing of Ceramics with Geopolymers”, 42nd International Conference and Expo on Advanced Ceramics and Composites (ICACC-42), January 21-26, 2018, Daytona Beach, FL, USA.
9. “High-porosity Geopolymer Components by Direct Foaming and Direct Ink Writing”, 42nd International Conference and Expo on Advanced Ceramics and Composites (ICACC-42), January 21-26, 2018, Daytona Beach, FL, USA.