



The Combustion Institute

5001 Baum Boulevard, Suite 644

Pittsburgh, Pennsylvania 15213-1851 USA

Ph: (412) 687-1366

Office@CombustionInstitute.org

Fax: (412) 687-0340

CombustionInstitute.org

Andrea D'Anna

2020 Candidate Profile: The Combustion Institute Board of Directors

Reasons for Nomination

Energy sustainability and global warming have greatly focused the attention of socio-economical community on combustion. Our goal, as members of the Combustion Institute, should be to make combustion science part of the solutions for the development of a sustainable progress rather than one of the major issues. Combustion science has indeed already enabled enormous advances in many technological areas strongly contributing to the actual level of the wellness of our society, and it is ready to take the lead and face new upcoming challenges. With a solid fundamental base, and strong interplay between all disciplines, combustion science is uniquely positioned to tackle these problems, having much to offer towards the development of clean and sustainable energy as well as of new technologies for mobility. This view of the combustion science has motivated my researches and animated my activities over the years. If elected, I plan to put my knowledge and enthusiasm at the service of our community and stimulate the participation of young talented scholars.



See the next page for the candidate's curriculum vitae.

Andrea D'Anna

Current Position

Professor, Chemical Engineering, Università degli Studi di Napoli Federico II.

Education

M.S. (1984) Chemical Engineering, Università degli Studi di Napoli

Fields of Interests

Combustion kinetics, pollutant formation, nanosized materials, and renewable energy conversion.

Selected Awards and Honors

Fellow, The Combustion Institute (2018);

Silver Medal of the Combustion Institute, 34th International Symposium (2012)

Distinguished Paper Awards, 34th and 37th International Symposia on Combustion (2012, 2018)

Selected Professional Activities

Program Co-Chairs of the *Mediterranean Combustion Symposia* (2007-present); Member of *ACTRIS* Board (Aerosol Clouds and Trace Gases) (2018-present); Chair of the *Ph.D. School in Industrial Product and Process Engineering* at Napoli University (2017-present); Executive vice president of the Italian National Interuniversity Consortium for the Physical Sciences of Matter (2014-present); Member of the *Scientific Advisory Committee, International Sooting Flame Workshops* (2011- present); Member of the Steering Committee of the International Congress on Combustion by-Products and Their Health Effects (2006-present); Chair of the Board of the International *Combustion Institute Summer School* (ICISS) in Procida, 2015; Member of the Combustion Institute (1986-present).

Selected Keynote Lectures and Invited Talks

1. "Combustion-Generated Fine and Ultrafine Particles" Australian Combustion Symposium 2015, Victoria, December 7-9, 2015.
2. "Particle nucleation in combustion", RECTA 2009, Bilbao (Spain), June 24-26, 2009.
3. "Fine particles from combustion sources" European Aerosol Conference, Greece, August 24-29, 2008.
4. "Combustion-Formed Nanoparticles" Thirty-Second International Symposium on Combustion, Montreal (Canada), August 3-10, 2008.
5. "On the aromatic growth and particle inception in flames" 8th International Congress on Combustion By-Products: Origin, Fate and Health Impact, Umeå (Svezia), June 17-19, 2003.

Selected Publications

1. Schulz, F., Commodo, M., Kaiser, K., De Falco, G., Minutolo, P., Meyer, G., D'Anna, A., & Gross, L. (2019). Insights into incipient soot formation by atomic force microscopy. *Proc. Combust. Inst.* 37:885–892.
2. Liu, C., Singh, A. V., Saggese, C., Tang, Q., Chen, D., Wan, K., Vinciguerra M., Commodo, M. De Falco, G. Minutolo, P. D'Anna, A., Wang, H. (2019). Flame-formed carbon nanoparticles exhibit quantum dot behaviors, *PNAS* 116(26), 12692-12697.
3. Commodo, M., D'Anna, A., De Falco, G., Larciprete, R., & Minutolo, P. (2017). Illuminating the earliest stages of the soot formation by photoemission and Raman spectroscopy. *Combust. Flame*, 181, 188-197.
4. De Falco, G., Porta, A., Petrone, A. M., Del Gaudio, P., El Hassanin, A., Commodo, M., Minutolo, P., Squillace, A. & D'Anna, A. (2017). Antimicrobial activity of flame-synthesized nano-TiO₂ coatings. *Environmental Science: Nano*, 4(5), 1095-1107.
5. P. Pedata, T. Stoeger, R. Zimmermann, A. Peters, G. Oberdörster, A. D'Anna (2015). "Dangerous Negligence of the Smallest?" *Fiber Part. Toxicol.* 12(1), 34.
6. Sirignano, M., D'Anna, A. (2013) Coagulation of combustion generated nanoparticles in low and intermediate temperature regimes: an experimental study, *Proc. Combust Inst.* 34, 1877-1884.
7. D'Anna, A. (2009) "Combustion-formed Nanoparticles", *Proc. Combust. Inst.* 32:593-613.
8. D'Anna, A., Kent, J. (2006) "Modelling of Particulate Carbon and Species Formation in co-Flowing Diffusion Flames of Ethylene", *Combust. Flame*, 144(1-2):249-260.
9. D'Alessio, A., Barone, A.C., Cau, R., D'Anna, A., Minutolo, P. (2005) "Surface Deposition and Coagulation Efficiency of Combustion generated Nanoparticles in the Size Range from 1 nm to 10 nm" *Proc. Combust. Inst.* 30(2):2595-2603.
10. D'Anna, A., Violi, A., D'Alessio, A., Sarofim, A.F. (2001) "A Reaction pathway for Nanoparticle Formation in Rich Premixed Flames", *Combust. Flame* 127(1/2):1995-2003.