The Combustion Institute
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Perrine Pepiot

2020 Candidate Profile: The Combustion Institute Board of Directors

Reasons for Nomination

I have been a member of The Combustion Institute throughout my career, taking a more active role in my local and national section governance since 2016. Now chairing the US Eastern States section, I have had privilege to work with exceptional individuals, students and researchers alike, who are passionate about creating a vibrant and engaged community through education and early career professional development initiatives. Combustion science is rapidly evolving to respond to the growing societal and environmental challenges: I believe that our younger members are our best asset to tackle those challenges. If elected, my focus will be to identify and promote initiatives at the international level that engage the new generation of combustion scientists and address our shared education and professional development needs.

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

PERRINE PEPIOT
Associate Professor, Sibley School of Mechanical and Aerospace Engineering, Cornell University, USA

Current position
Associate Professor, MAE, Cornell University, Ithaca, NY. 2017 - present

Education
M.S., Aerospace Engineering, SUPAERO–ENSAE, Toulouse, France 2003
M.S., Mechanical Engineering, Stanford University, Stanford, CA.2003
Ph.D., Mechanical Engineering, Stanford University, Stanford, CA.2008
Post-doc, Bio-energy, National Renewable Energy Laboratory, Golden, CO. 2008–2009.

Research Expertise
Development of new modeling and computational tools to improve the description of complex chemical processes in CFD simulations of energy systems, with a focus on combustion and biomass conversion. Automatic chemical kinetic analysis and chemistry reduction tools, development of use of detailed multi-scale numerical techniques to simulate reactive particle-laden flows with application to biomass thermal.

Selected Publications
- PEPIOT, P., PITSCH, H., (2008) An efficient error-propagation-based reduction method for large chemical kinetic mechanisms. Combust. Flame, 154:67 – 81.
- PEPIOT, P., MALHOTRA, R., KIRBY, A. R., A. L. BOEHMAN, PITSCH, H. (2008) Experimental study and structural group analysis for soot reduction tendency of oxygenated fuels, Combust. Flame, 154:191 – 205.
- LIANG Y., POPE, S. B., PEPIOT, P. (2015) An adaptive methodology for the efficient implementation of combustion chemistry in particle PDF methods, Combust. Flame, 162:3236 – 3253.
- GOYAL, H., PEPIOT, P. (2017) A compact chemical kinetic model for the simulation of biomass thermochemical conversion, Energy & Fuel, 31:12120 – 12132.
- TAGLIANTE, F., POINSOT, T., PICKETT, L.M., PEPIOT, P., MALBEC, L.-M., BRUNEAUX, G., ANGELBERGER, C. (2019) A conceptual model of the flame stabilization mechanisms for a lifted Diesel-type flame based on direct numerical simulation and experiments, Combust. Flame, 201:65 – 77.

Selected Honors, Awards and Recognitions

2017 NSF CAREER Award
2014 John Swanson ’61 Excellence in Teaching Award, Cornell University, NY
2013 James M. and Marsh D. McCormick Excellence in Advising Award, Cornell, NY

Selected Professional Outreach and Service

Executive board member, Eastern States section (Chair) and US section of the Combustion Institute.
Early Career and Diversity Committee Chair, US sections of the Combustion Institute.
Editorial board, Applications in Energy and Combustion Science
2020 International Symposium of the Combustion Institute: colloquium co-chair, associate editor