



**The Combustion Institute**

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**Li Qiao**

*2020 Candidate Profile: The Combustion Institute Board of Directors*

**Reasons for Nomination**

As a board member, my effort would focus on (1) enhancing industry collaboration, (2) bridging combustion with other sciences, and (3) mentoring the younger generation.

Industry-sponsored research, which results in more patents than federal-funded research, is a growing share of sponsored research in U.S. universities. I would aim to increase industry participation by establishing consortiums, promote industry-academia collaboration by organizing workshops, panels and site visits, and seek internship opportunities for our student members.

The emerging of new sciences, such as A.I., will revolutionize industry. We've seen a movement in higher education to include such new sciences in our curriculum. I would urge the Institute to organize workshops to educate our researchers on the new sciences and promote cross-discipline interactions that will result in new ideas, models and tools to enable solutions to the grand challenges in combustion.

Developing researchers is vital to the future of combustion science. We need to create more mentoring opportunities to foster growth and success. I would add speed-mentoring to every conference so students can meet multiple mentors in a short time. I also would establish a mentoring program between senior faculty and junior faculty/postdoc in which they chat regularly via teleconference.



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

## Li Qiao

Professor, School of Aeronautics & Astronautics, Purdue University

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**Research Interests:** energetic nanomaterials, fuel synthesis and alternative fuels, spark ignition and pre-chamber turbulent jet ignition, supercritical fuel behaviors in high-pressure propulsion systems, micro-propulsion for space applications, advanced laser and x-Ray diagnostics.

## Education

Ph.D. Aerospace Engineering, the University of Michigan, 2007

M.S. Engineering Mechanics, Tsinghua University, 2001

B.S. Engineering Mechanics, Tsinghua University, 1999

## Professional Experience

- Professor (2020-pre), Associate Professor (2013-2020), Assistant Professor (2007-2013), School of Aeronautics & Astronautics, School of Mechanical Engineering (courtesy), Purdue University
- Summer Faculty Fellow, NASA Glenn Research Center, OH (2011),
- Summer Faculty Fellow, Air Force Research Lab, Wright-Patterson, OH (2010)

## Awards

- Recognition of Outstanding Engineering Teachers, Fall 2018, Spring 2019, Purdue University
- AIAA Associate Fellow (2017)
- National Science Foundation CAREER Award (2013)
- Air Force Office of Scientific Research Young Investigator Award (2013)
- Army Research Office Young Investigator Award (2010)

## Recent Invited Talks

- “Graphene foam-supported catalysts,” *Advances in the Fundamental Understanding and Functionalization of Reactive Materials, Fall Materials Research Society Meeting & Exhibit*, 2019.
- “Molecular dynamics investigation of sub-to-supercritical transition of hydrocarbon mixtures,” *The 2nd International Workshop on Near Limit Flames*, 2019.
- “Pre-chamber jet ignition research at Purdue University,” *Virtual Engine Research Institute and Fuels Initiative Workshop*, Argonne National Lab, 2019.
- “Bridging nanotechnology and combustion for space propulsion,” *the 13<sup>th</sup> China Electrical Propulsion Conference*, 2017.
- “Enhance the performance of propellants and fuels using nanomaterials,” *China National Symposium on Combustion*, 2017.

## Service to Purdue University and Professional Societies

- Member, Faculty Senate, Purdue University, 2019-pre
- Chair, Committee for Student Excellence, Purdue University, 2017-pre
- Vice Chair, Senate Educational Policy Committee, Purdue University, 2019-pre
- Member, Advisory Committee on Equity, Purdue University, 2017-2020
- Faculty advisor, Purdue AIAA Student Chapter, 2016-pre
- Member, AIAA Terrestrial Energy System (TES) Technical Committee, 2016-pre
- Member, Organizing Committee, 2019 AIAA Propulsion & Energy Forum, Indianapolis, IN.
- Member, Organizing Committee, 2020 AIAA Propulsion & Energy Forum, New Orleans, LA.
- Colloquium Co-Chair, New Concepts, the 38<sup>th</sup> International Symposium on Combustion, 2020.