



The Combustion Institute

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Nils Hansen

2022 Candidate Profile: The Combustion Institute Board of Directors

Reasons for Nomination

I have been a member of The Combustion Institute for almost 20 years, taking an active role for example as the Program Co-Chair of the 39th International Symposium on Combustion, as an Associate Editor of the Proceedings of the Combustion Institute, and as the organizer of the biennial Flame Chemistry Workshop series.

Without a doubt, combustion processes will play a key role in the future for addressing growing energy demands while responding to environmental challenges; however, combustion technologies are considered mature, and combustion research is facing a challenging future.



If elected as a member of the Board, my efforts would focus on outreach activities to educate the general public, students, and research sponsors and on bridging combustion science with other sciences. Our community has many skills, e.g., extensive expertise in advanced diagnostics, chemical kinetics, computational modeling of reactive flows (to name a few), that we can apply to address challenging problems in neighboring disciplines. I want to work with the Institute and its members to identify new interdisciplinary ideas, new collaborative research opportunities, and new funding streams.

I would welcome the opportunity to participate in shaping the future of The Combustion Institute in the coming years.

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

Current Positions:

- Manager of the “Gas-Phase Chemical Physics” Department at the Combustion Research Facility of the Sandia National Laboratories, Livermore, CA, USA
- Distinguished Staff Scientist at Sandia’s Combustion Research Facility and Plasma Research Facility

Education:

- Diploma-Degree in Chemistry, Christian-Albrechts-Universität Kiel, Germany (09/1995)
- Promotion to *Dr. rer. nat.* at the Christian-Albrechts-Universität Kiel, Germany under the direction of Prof. F. Temps (12/2000)
- Post-Doctoral Researcher, University of California at Santa Barbara, Host: Prof. A. M. Wodtke (01/2001-07/2003)

Selected Professional Honors, Awards, Fellowships, and Visiting Appointments:

- Program-Co-Chair for the “39th International Symposium on Combustion”, Vancouver, Canada
- Elected “Helmholtz International Fellow” to pursue collaborative research with one or more Helmholtz Centers in Germany
- Elected “Fellow of the Combustion Institute”
- Distinguished Paper Award, 37th International Symposium on Combustion
- Alumni Award of the *Alexander von Humboldt-Foundation* to perform research at the Universität Bielefeld, Germany - Host: Prof. K. Kohse-Höinghaus
- O.W. Adams Award for “*Exemplary Contributions to the Programs of the Combustion Research Facility*”
- Visiting Scientist, Universität Bielefeld, Germany - Host: Prof. K. Kohse-Höinghaus
- Feodor-Lynen-Fellowship of the *Alexander von Humboldt-Foundation*

Scientific Records:

- Publications: **144** (published and/or in press) in peer-reviewed international journals
- Researcher ID: **h-index: 42**; <http://www.researcherid.com/rid/G-3572-2012>
- Google Scholar: **h-index: 48**; https://scholar.google.com/citations?user=FPz5_kYAAAAJ&hl=en

Selected Publications:

- *Experimental Observation of Hydrocarbon Growth by Resonance Stabilized Radical-Radical Chain Reaction*, D. E. Couch, A. J. Zhang, C. A. Taatjes, **N. Hansen**, *Angew. Chem. Int. Ed.*, **2021**, 60(52), 27230-27235
- *Extreme Low-Temperature Combustion Chemistry: Ozone-Initiated Oxidation of Paper: Methyl-Hexanoate*, A. C. Rousso, A. W. Jasper, Y. Ju, **N. Hansen**, *J. Phys. Chem. A*, **2020**, 124(48), 9897-9914
- *Identification of the Molecular-Weight Growth Reaction Network in Counterflow Flames of the C₃H₄ Isomers Allene and Propyne*, G. Kukkadapu, S. W. Wagnon, W. J. Pitz, **N. Hansen**, *Proc. Combust. Inst.*, **2021**, 38(1), 1477-1485
- *Detection of Aliphatically Bridged Multi-Core Polycyclic Aromatic Hydrocarbons in Sooting Flames with Atmospheric-Sampling High-Resolution Tandem Mass Spectrometry*, B. D. Adamson, S. A. Skeen, M. Ahmed, **N. Hansen**, *J. Phys. Chem. A*, **2018**, 122(48), 9338-9349

Services to the Community:

- **Program-Co-Chair** for the “39th International Symposium on Combustion”, Vancouver, Canada
- **Co-Chair** for the “Diagnostics Colloquium” for the 36th International Symposium on Combustion, Seoul, South Korea
- **Associate Editor** for the “Proceedings of the Combustion Institute”
- **Organizer** of the biennial “International Workshop on Flame Chemistry” series (~160 participants in 2020)