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ICE Forward Conference**

(ICEF2022)

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Conference Sponsor
Internal Combustion
Engine Division

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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PROCEEDINGS OF 2022 ASME ICE FORWARD CONFERENCE

Welcome to the 2022 ASME ICE Forward Conference (previously the Internal Combustion Engine Fall Technical Conference). After two years of virtual events, ICE Forward is once again an in-person event held at the Crowne Plaza Indianapolis Downtown Union Station Hotel, October 16-19, 2022 in Indianapolis Indiana, USA. The Internal Combustion Engine Division (ICED) executive committee, together with the ASME staff have worked diligently to make this event engaging and exciting. The four-day event, which also celebrates the 100-year anniversary of ICED, begins on the evening of Sunday, October 16th with a welcome reception and ends with a workshop on the afternoon of Wednesday, October 19. Technical presentations, keynotes, panel discussions, and tours are planned throughout Monday, Tuesday, and Wednesday. The annual awards ceremony will also be held in the evening of Monday, October 17th.

The ICE Forward conference is intended to cultivate a collegial environment in which participants can discuss and exchange information related to the science and engineering of internal combustion engines. This event provides a forum for experts from industry, academia, and governmental agencies from all over the world to share the latest technological developments. The conference program is distributed into seven technical tracks with multiple concurrent sessions, spread over two days. Newly updated tracks cover a wider range of topics than previous conferences: (1) Off-Road Systems; (2) Fuels and Carbon Management; (3) Advanced Combustion; (4) Powertrain, Electrification, and Emissions Systems; (5) Fuel Injection and Sprays; (6) Modeling and Simulation; and (7) Design, Lubrication, and Thermal Management. In addition to high-quality technical presentations, the conference features keynote talks, panel discussions, workshops, and a variety of networking opportunities.

We are especially grateful to the many volunteers who ensure the conference's high technical standards and engaging program. This conference is made possible by the contributions of our track and session chairs and organizers, technical reviewers, paper authors, and sponsors. We are thankful to all the speakers for participating and sharing their expertise and knowledge with the community.

You may be wondering why we decided to change the name of our conference and why we are doing it now. As mentioned, the ICED turned 100 years old in 2021. This is a tremendous milestone worthy of an in-person celebration, and so we postponed our anniversary festivities until this year's event. But as we mark this significant centennial milestone that celebrates our past, we must also look forward to our future—a future that no doubt includes a massive shift to low-carbon and carbon-free technologies.

The internal combustion engine has a firm place in this future. Improved efficiency, cleaner fuels, hybridization, and advanced aftertreatment technologies are all areas of significant research for on-road and off-road engines alike. It's up to us, the IC engine community, to take these innovations and keep our industry relevant and moving forward—ICE forward.

Accordingly, with a revamped conference name, a robust set of technical tracks, and the return to in-person events, we continue to pave the way forward for our community.

Thank you for attending ICE Forward and we hope you have a successful conference week!



Kelly Senecal, Ph.D.

Co-founder, Convergent Science

Conference Chair



Sundar Krishnan, Ph.D.

Professor of Mechanical Engineering, University of Alabama

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