

Summary of The First Meeting of The Hydrogen-Fueled ICE Collaborative Task:

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IEA Task Leaders Meeting
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Program Overview

Objective

Increase the fundamental understanding of the controlling physical and chemical processes governing internal combustion engines operating on hydrogen.

Strategies

- H₂ enrichment of hydrocarbon fuels (**H₂E-ICE**).
- H₂ as a pure fuel (**H₂ICE**).

Benefits:

- H₂E-ICE and H₂ICE research communities are small and much can be gained by collaborative efforts.
 - establishment of baseline operating conditions.
 - instrumentation and diagnostics.
 - validation of models and so forth.

Goals for the H₂ICE Task

- **NOT JUST ANOTHER MEETING**
 - aim is to establish a working group
- **Identify areas of collaboration and seek out potential collaborators**
- **Network between participants**
 - distribution of manuscripts
 - conference announcements
 - among others
- **Engage non-participants (parties not in attendance)**
 - handouts
 - virtual attendance
 - among other methods

Technical Program

- Jansohn, Peter “Emission & combustion characteristics of H₂-containing reformer gas in Internal Combustion Engines”
- Verhelst, Sebastian “H₂ ICE research at Ghent University”
- Tomita, Eiji “Hydrogen Combustion and Exhaust Emissions Ignited with Diesel Oil in a Dual Fuel Engine”
- Fujimoto, Hajime Gen “Auto-Ignition and Burning of an Unsteady Hydrogen Jet”
- White, Christopher “Overview of Sandia's Hydrogen Engine Research Program”

Potential Areas of Collaboration

- **Flame speed measurements for engine-like pressures and temperature**
- **Heat transfer characteristics and suitable correlations**
- **Fundamentals of transient hydrogen jets**
- **Fundamentals of knock/preignition in hydrogen engines**