

Our lab (and planet) needs you!

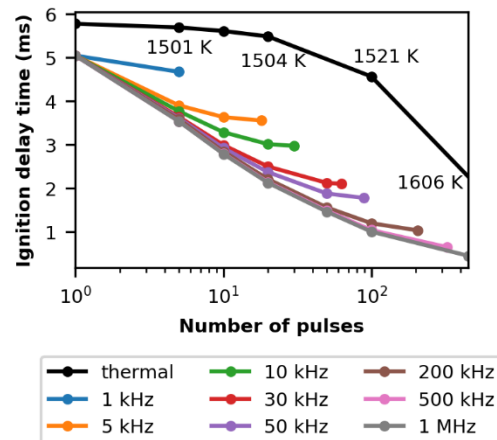
Looking for MSc and PhD students to work on renewable fuels.

The major remaining technological challenges for a carbon free and sustainable future are storage and transport of renewable energies. Chemical storage of energy in the form of hydrogen and ammonia is one promising solution for both. In the combustion and diagnostic lab, we look at chemical processes involving these fuels, and how they can be improved. Prospective projects could investigate green ammonia production.

Plasma-assisted combustion

Ammonia combustion is challenging due to its resistance to ignition, low flame speed and high NO_x emissions. A plasma discharge creates species that aid stable and clean combustion:

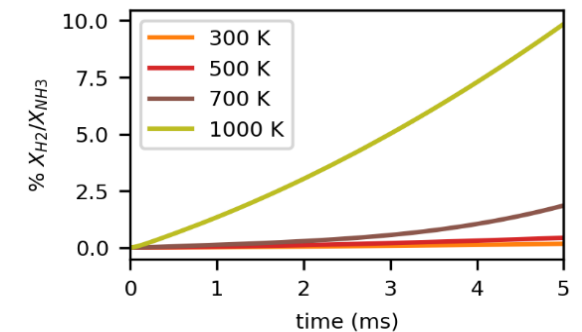
- How to produce useful species under engine conditions
- NO_x and unburnt fuel reduction using plasma
- Chemical kinetic mechanisms and modeling of plasma
- Catalytic materials and catalysis modeling
- Flame and ignition enhancement
- And more...



Plasma-enhanced reforming

To retrieve the energy stored in ammonia, it can be dissociated into reforming products in a plasma discharge:

- Hydrogen yields
- Other stable products for combustion: NO_x, ozone
- In future: plasma-assisted catalysis – both reforming and production



Interested in joining the Combustion and Diagnostics Group? Email: joseph.lef@technion.ac.il