

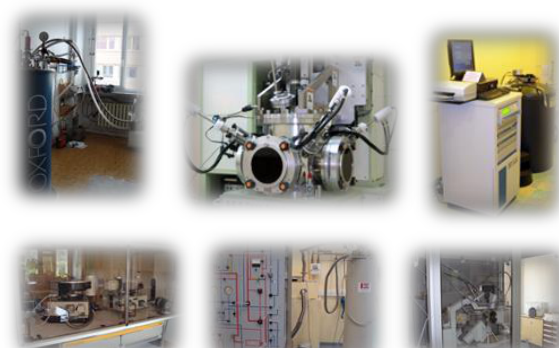
LIGHT - Hydrogen from Graphene Advantages



INSTITUTE OF LOW TEMPERATURE AND STRUCTURE RESEARCH
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Graphene **Light**
Project



ILT&SR structure

- Division of Nanomaterials Chemistry and Catalysis
- Division of Low Temperature and Superconductivity
- Division of Magnetic Research
- Division of Structure Research
- Division of Optical Spectroscopy



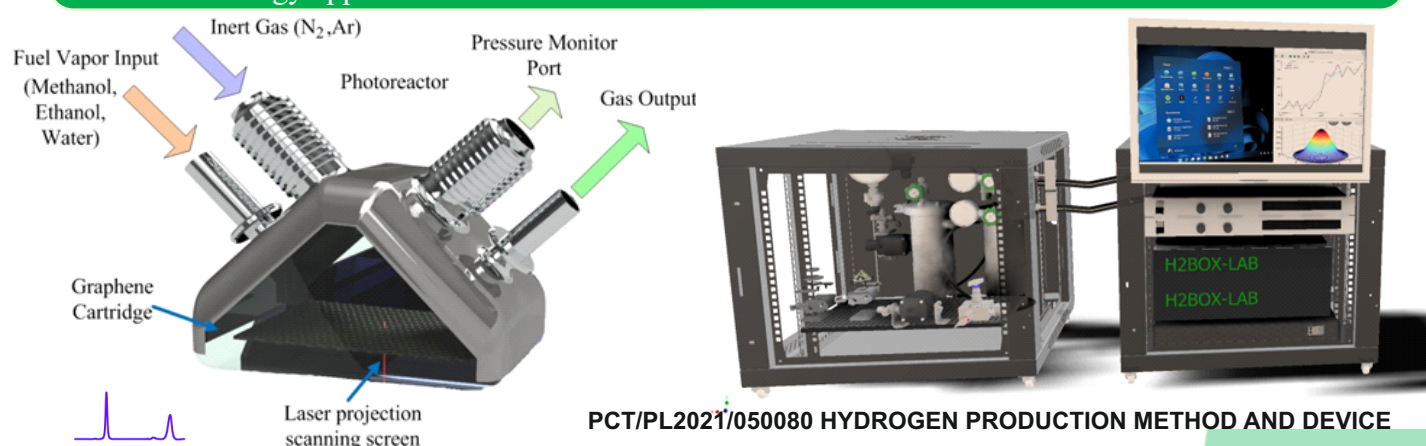
Hydrogen Laboratory

laboratoriumwodorowe.pl

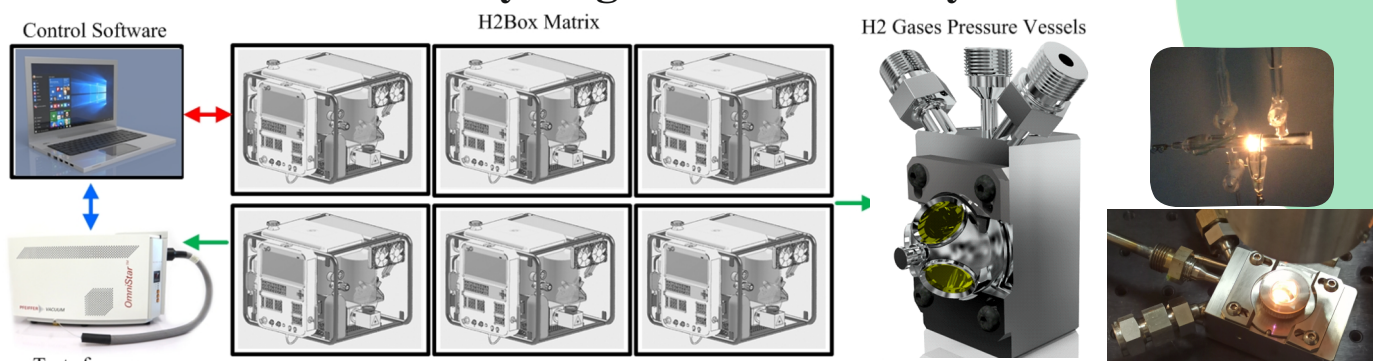


Laser Induced Graphene Hydrogen Technologies (LIGHT)

Efficient Generation of Hydrogen by laser irradiation of Graphene based photocatalyst targets in the alcohols, water and their vapors in scalable broadband photocatalytic reactor (UV-VIS-IR) for renewable energy applications.



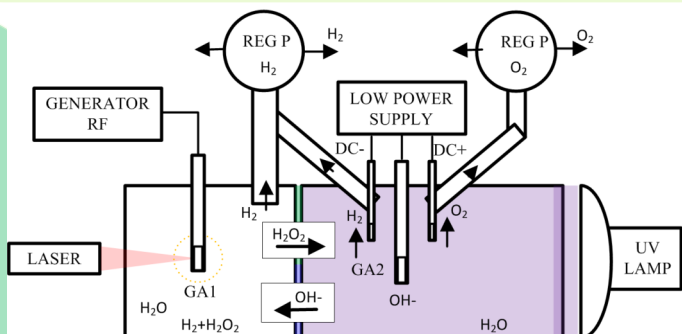
Scalable Hydrogen Production by LIGHT



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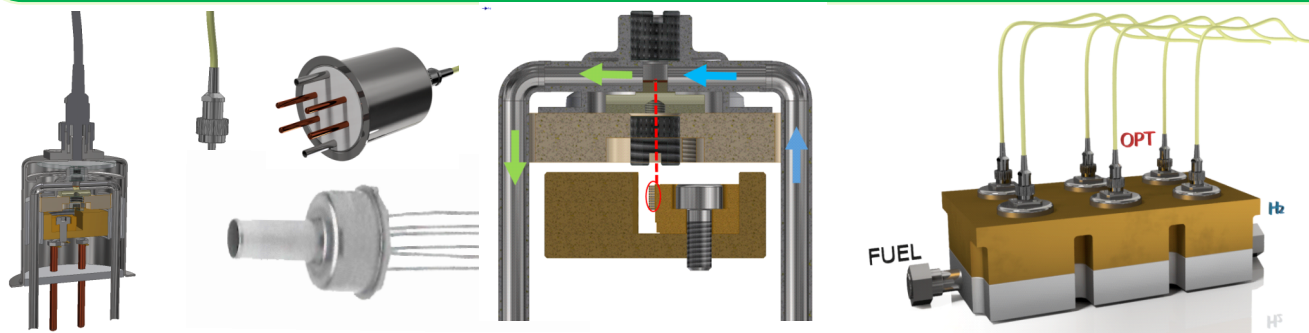
Due to the features of the Graphene material (flake in suspension, aerogel) and the available energy conversion techniques, the current work aims to achieve a synergy of optical, magnetic, electrical and catalytic phenomena specific to 2D materials.



The laser induced of hydrogen generation from water was investigated under influence of applied ionization condition. It was found that efficiency of the conversion process reached its maximum.

Graphene Hydrogen Microchip

The Microchip Hydrogen Generator GL μ H2 is based on phenomena of laser-induced white light on Graphene (LIWE) and is dedicated for vapor or gas phase applications. GL μ H2 involves semiconductor CW laser diodes in a chip-size package. Graphene cores are configured for better catalytic properties. Laser focal point was obtained at the contact of two mechanical high strength Graphene Aerogels for better performance.



Hydrogen Laboratory Inventions and Intellectual Property Rights

- Producing hydrogen by exposure to light on Graphene Aerogels in Methanol.
- Producing hydrogen by exposure to light on Graphene Aerogel in Ammonia Water.
- Generating electric current by converting CO₂ dissolved in water to Methanol using Graphene as a Photocatalyst.
- Method and device for photo-induced conversion of Water to Oxy-Hydrogen mixture using Graphene as a Photocatalyst.
- Converting light energy into thermal energy using Graphene-based Photolysis with hydrogen storage.
- Photonic Device Microchip for Hydrogen generation based on Graphene Nanocatalyst.

The full list of currently research and approved patents is available on the website: www.intibs.pl



We welcome you to cooperate with Hydrogen Laboratory

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