The Solution to Hydrogen Storage

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Hydrogen Storage

In order to fully utilise hydrogen (H_2) as a fuel source in automobiles, a number of parameters have to be met.
These include:

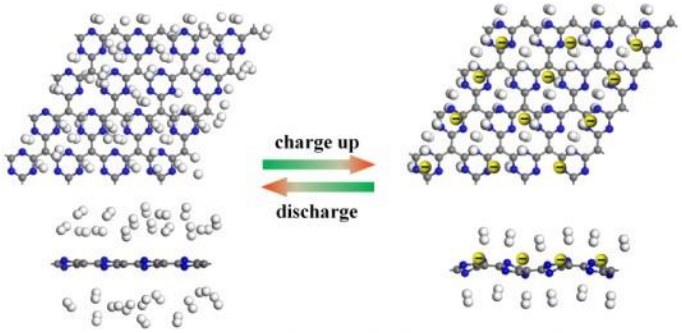
- Good kinetics for loading
- Desorption temperature between 60-120 degrees C
- Reversible loading / unloading
- Low toxicity
- Non explosive
- Low cost
- Light weight

L. Schlapbach, et al. *Nature* 414, 353-358 (2015)

Our Patented Technology

Through a computational design approach we have identified a material and a method to capture and controllably release molecular H_2 which complies with all of these parameters, while other leading systems still have problems with kinetics and high temperatures. Our patented technology "*Electrocatalytic Gas Capture*" allows for controlled, rapid uptake of molecular H_2 as well as voltage controlled release at moderate temperatures.

Details



An experimentally feasible approach for high-capacity hydrogen storage

Provisional Patent No. 2015902863 (2015)

X. Tan, et al. *ChemSusChem* DOI: 10.1002/cssc.201501082 (2015)

Electrical charging of graphitic carbon nitride nanosheets (g-C_4N_3 and g-C_3N_4) is proposed as a strategy for high-capacity and electrocatalytically switchable hydrogen storage. In contrast to other hydrogen storage approaches, this approach promises both facile reversibility and tunable kinetics without the need of any specific catalysts. These predictions may prove to be instrumental in searching for a new class of high-capacity hydrogen storage materials.

We are seeking

Proof of concept funding to: develop prototypes that can be tested on a larger scale under expanded parameters to demonstrate the efficacy of this technology in both moderate-bandgap semiconducting and conducting compositions before approaching a leading manufacturer in the automobile space.