Poster

HYDROGEN STORAGE IN PILLARED LAMINAR ORGANIC-INORGANIC MATERIALS

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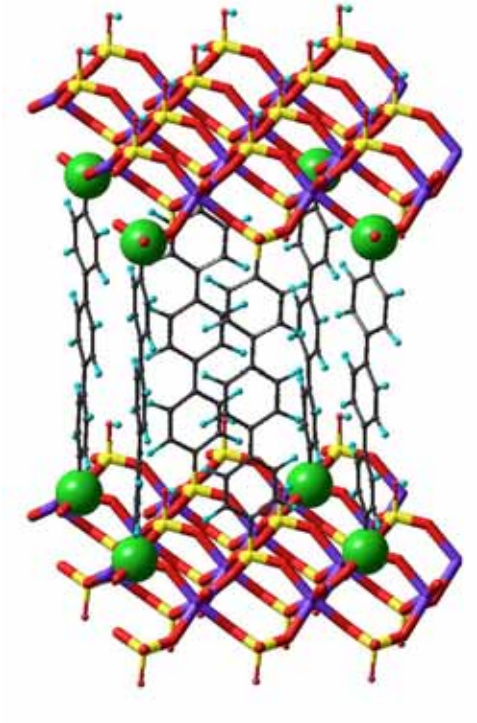
Hydrogen is a firm candidate to be a consistent energy vector for the future because of its cleanliness in releasing energy. However, severe problems have to be tackled before this happens. Besides the struggle inherent to hydrogen production, the handling of this tiny molecule poses extraordinary problems, especially in vehicles, because of the enormous volume occupied by this gas at normal conditions (*ca*. 12 L/g). The safe application of this technology strongly demands secure and efficient hydrogen storage procedures. *Physisorption* of hydrogen on porous materials may be an efficient solution to this dilemma. However, the key properties that a porous material must bear to densely and reversibly absorb hydrogen accomplishing DOE goals are not as yet well known. Many materials have been checked for this purpose but, to the best of our knowledge, we have been the first in attempting the design of laminar organic-inorganic scaffolds to store hydrogen. We hereby report our most recent results with materials based on pillared, laminar aluminium and zirconium phosphonates.



References

Brunet, E.; Alhendawi, H.M.H.; Cerro, C.; Mata, M.J.; Juanes, O.; Rodríguez-Ubis J.C. *Angew. Chem. Int. Ed.* 2006, *45*, 6918.