

W0292

**Location of Hydrogen Absorption Sites in Crystalline Materials using Single-Crystal Neutron Diffraction.** Elinor C. Spencer <sup>a,b</sup>, Judith A.K. Howard <sup>a</sup>, Garry J. McIntyre <sup>b</sup>, Jesse L.C. Rowsell <sup>c</sup>, Omar M. Yaghi <sup>c</sup>, <sup>a</sup>Dept. Chemistry, Durham Univ., Durham, DH1 3LE. UK, <sup>b</sup>ILL, 38042 Grenoble, Cedex 9, France, <sup>c</sup>Dept. Chemistry, Univ. of Michigan, Ann Arbor, MI 48109.

Single-crystal neutron diffraction with image-plate detection has been used to probe the location of hydrogen gas absorption sites in the metal-organic framework system  $Zn_4O(1,4\text{-benzenedicarboxylate})$ <sup>[1]</sup>. This novel study was performed on VIVALDI (Very-Intense Vertical-Axis Laué Diffractometer)<sup>[2]</sup> situated on a thermal neutron beam at the Institut Laue-Langevin (Genoble, France). This novel experiment was only feasible due to the exceptionally fast data collections possible on VIVALDI, and the instrument's suitability for analysing small crystals.

[1] H. Li, M. Eddaoudi, M. O'Keeffe & O.M. Yaghi, *Nature*, 402, 276, (1999).

[2] C.Wilkinson, J.A.Cowan, D.A.A. Myles, F. Cipriani & G.J. McIntyre, *Neutron News* 13, 37, (2002).