

Poster Presentation

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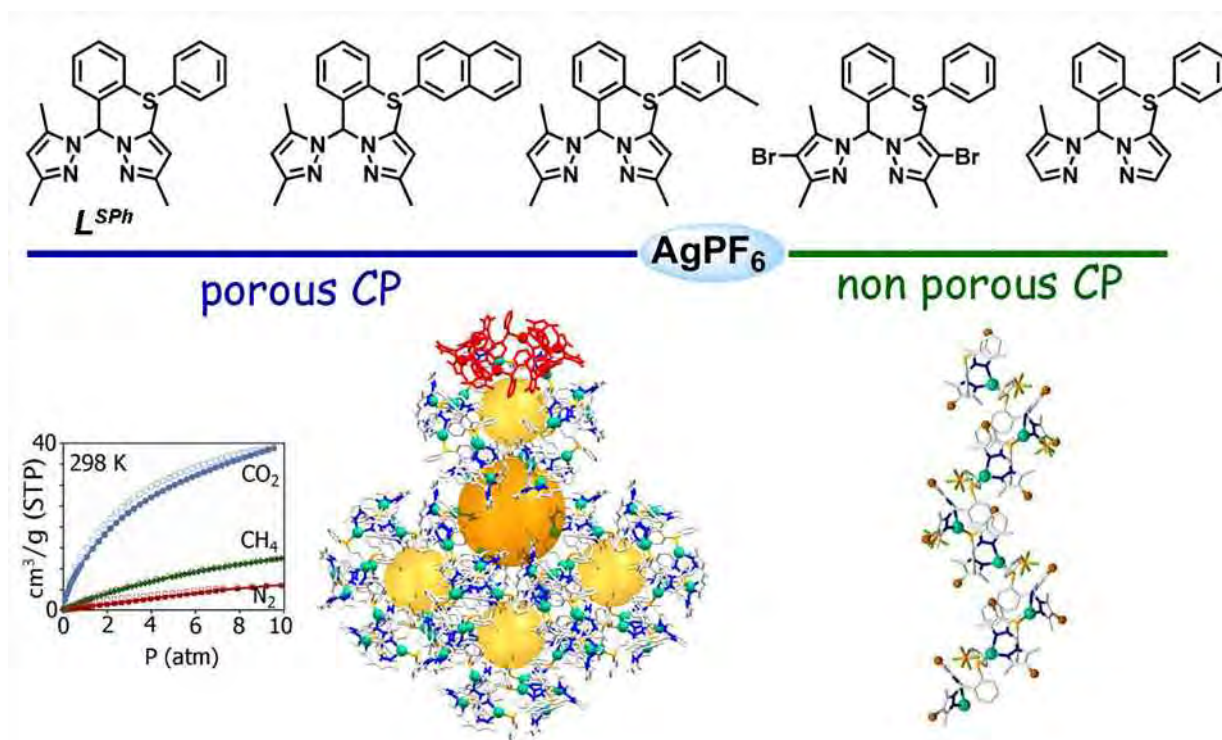
Silver coordination metallacycles assembled into microporous materials

L. Marchio¹, I. Bassanetti¹, C. Atzeri¹, A. Comotti², P. Sozzani²

¹University of Parma, Department of Chemistry, Parma, Italy, ²University of Milano Bicocca, Department of Materials Science, Milano, Italy

Porous solid materials represent one of the most intense areas of study for chemists, physicists, and materials scientists [1]. These systems have found a large number of applications in many fields, such as adsorption, separation and purification, as well as catalysis [2]. We have previously shown that when using the pre-organized thioether functionalized bispyrazolymethane ligand (LSPH) and silver(I), hexameric metallacycles are formed in solution. In the solid state the role of the counteranion (BF_4^- , PF_6^- , NO_3^- , and CF_3SO_3^-) is of fundamental importance in the way the metallacycles self-assembled into a diversity of 3D supramolecular architectures and cavities. In particular, highly symmetric BF_4^- and PF_6^- favours the formation of crystals with permanent porosity as demonstrated by gas adsorption measurements. In order to modulate the porous properties of these silver coordination polymer (CP), we synthesised a series of differently functionalized bis(pyrazolyl)methane ligands (Figure). The silver complexes were prepared with two types of anions (PF_6^- and CF_3SO_3^-) to investigate their role in the supramolecular arrangements. The structural features and gas sorption properties (CO_2 , CH_4 and N_2) of the new silver complexes will be presented. Solid state NMR was employed to investigate the localization of CO_2 within the cavities.

[1] T. R. Cook, Y. R. Zheng, P. J. Stang *Chem. Rev.*, 2013, 113, 734, [2] C. Janiak, J. K. Vieth *New J. Chem.* 2010, 34, 2366-2388, [3] I. Bassanetti, F. Mezzadri, A. Comotti, P. Sozzani, M. Gennari, G. Calestani, L. Marchio *J. Am. Chem. Soc.*, 2012, 134, 9142-9145



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