JM

Johnson Matthey

Technology Centre
Blount's Court, Sonning Common, Reading RG4 9NH UK
Tel: +44 (0) 118 924 2000 Fax: +44 (0) 118 924 2254

Dr Stephan Hofmann
Department of Engineering
9 JJ Thomson Avenue
Cambridge CB3 0FA
UK

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Dear Dr Hofmann

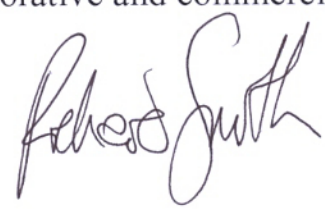
Re: Statement of Support for University of Cambridge EPSRC Capital for Great Technologies Advanced Materials proposal

As a leading supplier of catalysts and energy materials, Johnson Matthey has an extensive programme of research supporting the operating divisions in these high-tech markets. This research makes ever-increasing demands of characterisation techniques and therefore JM has an extensive interest in cutting-edge characterisation tools as they are increasingly important in understanding the structure and reactivity of the company's products. The advanced characterisation equipment proposed by the University of Cambridge, in particular the near ambient pressure (NAP) XPS system, is of key significance in this context, as it is very much aimed at studying the surfaces of materials under at least somewhat realistic conditions compared with standard surface analysis methods which operate under vacuum. For JM's products this is crucial, as a catalyst's active sites are at its surface.

The ability to examine materials under working conditions, for example at temperature and/or under a flow of gas, holds great promise for improving understanding of active materials. The proposed NAPXPS would allow the surface of a heterogeneous catalyst to be probed using photoelectron spectroscopy methods when exposed to reactive environments. This is especially important as it should allow chemical characterisation of the systems under far more realistic surface conditions than can be achieved using standard laboratory equipment. The end result of studies using such techniques should then yield enhanced understanding of the catalytic processes of interest. In turn this allows

better catalysts to be designed and made, bringing increased efficiency to the chemical processes which are crucial in so many aspects of the world today.

JM's interests cover a large portion of the intended utility of the NAPXPS system - energy materials and catalysis in particular - and the utility of the facility for significant scientific research is very high. JM is also very interested in the proposed development of improved, customisable NAPXPS cells to further advance this novel metrology technique. Johnson Matthey would be certain to utilise the proposed facilities in collaborative and commercial research.



Richard A P Smith
Principal Scientist