Hydrogen in Palladium and Its Alloys

INTERNATIONAL CONFERENCE ON HYDROGEN IN METALS

Information concerning the absorption of hydrogen by palladium and its alloys continues to form a significant part of the subject material presented at conferences on metal/hydrogen systems.

The level of research activity observed over recent years in regard to various aspects of the absorption of hydrogen by palladium and its alloys continues to be sustained. Some twenty papers variously concerned with this general topic were presented at a conference on Hydrogen in Metals held at the Institute for Low Temperature and Structural Research, Wroclaw during September 1983, and organised by Professor B. Staliński under the auspices of the Polish Academy of Sciences, in continuation of previous conferences held in Jülich, Birmingham and Münster.

Theoretical aspects of alterations of electronic structure and hydrogen interaction effects were discussed in papers by V. G. Vaks, N. E. Zein and V. G. Orlov of Moscow, by N. I. Kulikov and V. S. Maynashev of Troitsk, and by G. Moraitis, J. Khalifeh, M. A. Khan and C. Demangeat, of the University of Antananarivo (Madagascar), Jordan and Strasbourg. Experimental studies relating to electronic structure changes, including measurements of magnetic susceptibility, thermal expansion, elastic moduli, point contact spectroscopy, de Haas-van Alphen Effects and residual electrical resistivity were reported by E. Wicke, Münster and by R. Griessen, D. G. de Groot, J. Caro, H. K. Hemmes, B. M. Geerken, H. L. M. Bakker, L. M. Huisman and M. van Sprang from Amsterdam. The development of superconductivity in palladium and its alloys with high hydrogen contents was discussed in papers presented by J. P. Burger of Orsay, and by T. Skośkiewicz, M. Horobiowski and E. Trojnar, Warsaw and Wroclaw. Studies of hydrogen solubility and changes of electrical resistivity and thermoelectric power in amorphous metallic glass alloys of palladium were reported by G. G. Libowitz of Morristown and by S. Filipek, A. W. Szafrański and P. Duhaj, of Warsaw and Bratislava.

The combination of technological and academic interest in the diffusion of hydrogen in palladium and its alloys, and of isotope effects and experiments with positive muons, was reflected in papers presented by F. N. Gygax, A. Hintermann, W. Rüegg, A. Schenck, W. Studer, A. J. van der Wal, F. Stucki and L. Schlapbach, of Zürich; H.-G. Schöneich and H. Züchner, of Münster; G. Sicking, Münster; and M. Glugla and G. Sicking of Münster with T. Bentley and L. Earwaker of Birmingham.

Information concerning the hydriding characteristics of palladium compared to platinum and nickel has recently been extended in studies with alloys of these metals. Possible representation of hysteretic phenomena in these systems in terms of catastrophe transitions was outlined in a paper by F. A. Lewis and S. G. McKee of Belfast. Further guidance concerning forms of phase relationships in these alloy systems has been derived in high pressure studies of changes of electrical resistance thermoelectric power and X-ray structural measurements presented in a paper given by E. G. Ponyatovsky of Moscow and in papers by B. Baranowski and by A. Niemero, A. W. Szafrański and T. Skośkiewicz of Warsaw.

The papers presented will be published in the *Journal of Less-Common Metals*.

It is planned to hold the next conference in this series under the chairmanship of Professor A. R. J. P. Ubbelohde of Imperial College, London, in the Chemistry Department, Queen's University, Belfast, Northern Ireland over 26–29th March, 1985: further information from Dr. F. A. Lewis in Belfast. F.A.L.