

# A G E N D A

## IAEA SPECIALISTS' MEETING ON

### HIGH TEMPERATURE METALLIC MATERIALS FOR APPLICATION IN GAS-COOLED REACTORS

VIENNA, MAY 4 - 6, 1981

MEETING ROOM: Vienna International Centre  
Conference Building  
Floor 7, Room 6

CHAIRMAN: P. Koss Co-Chairman O. Demel

MONDAY, 4 MAY 1981  
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8.30 Registration at IAEA reception desk

9.00 Opening of meeting

SESSION I - OVERVIEW OF PROGRAMMES

Chairman: P. Koss

9.30 Advanced gas-cooled reactor materials  
development program: overview  
by D. H. Baldwin, O. F. Kimball and R. G. Frank

10.00 Development and testing of alloys for  
primary circuit structures of a VHTR  
by T. Kondo

10.30 Coffee break

11.00 High temperature metallic materials  
programme of the state Northrhine-Westfalia  
by Th. Monsau

11.30 Current status of HTGR materials studies  
at General Atomic Company  
by D. I. Roberts

12.00 Lunch

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SESSION II - MICROSTRUCTURAL STUDIES

- Chairman: L. W. Graham
- 14.30 Correlation of mechanical properties with microstructure of alloy 800 after annealing at 800 - 1000 °C  
by H. P. Degischer, O. Demel, H. Aigner
- 15.00 Morphology of  $\gamma'$  precipitates in single crystals of nickel alloys at creep temperatures  
by J. Glowina and B. Mikulowski
- 15.30 Coffee break
- 16.00 Elements of material structure in hydrogen transport in metals  
by J. A. Golczewski
- 16.30 Status of examinations with respect to hydrogen and tritium permeation at high temperatures  
by R. Hecker and D. Stöver
- 18.15 Reception by IAEA

TUESDAY, 5 MAY 1981  
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SESSION III - CORROSION

- Chairman: T. Kondo
- 8.30 Corrosion behaviour of experimental alloys in controlled purity helium  
by D. W. McKee and R. G. Frank
- 9.00 Interaction of metals with primary coolant impurities: comparison of steam cycle and advanced HTGR's  
by W. R. Johnson and G. Y. Lai
- 9.30 The behaviour of high temperature alloys during exposure in impure helium  
by L. W. Graham, K. G. E. Brenner and K. Krompholz
- 10.00 Relationship between carburisation and zero-applied-stress creep delation in alloys 800 H and Hastelloy X  
by H. Inouye and P. L. Rittenhouse
- 10.30 Coffee break

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11.00 Friction, adhesion and corrosion performance  
of metallurgical coatings in HTR helium  
by R. Engel and W. Kleemann

11.30 New ceramic coatings for high temperature  
materials protection  
by M. H. Bennett, M. R. Houlton and  
J. P. Price

SESSION IV - MECHANICAL PROPERTIES

Chairman: F. Schubert

12.00 Properties of materials for the high temperature  
helium turbine under mechanical and thermal  
loading  
by G. Raule and R. Bauer

12.30 Crack initiation and growth in Inconel 625  
as received and after aging at high temperatures  
in HTR helium  
by G. Ullrich, B. Panic and W. Stumpp

13.00 Lunch

14.15 Departure of bus to Austrian Research Centre  
Seibersdorf

15.00 Arrival at Seibersdorf and visit to facilities

17.30 Departure of bus to Vienna

20.00 Heurigenabend hosted by ÖFZS

WEDNESDAY, 6 MAY 1981

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9.00 Mechanical characterization of metallic materials  
for high temperature reactors in an air and in a  
helium environment  
by G. Saintfort, J. Sannier, M. Cappellaere and  
J. Grégoire

9.30 Weldability evaluations and weldment properties  
of Hastelloy X  
by J. F. King, H. E. McCoy and P. L. Rittenhouse

10.00 Materials behaviour in methane reforming gas  
by D. Schuhmacher and U. Bruch

10.30 Coffee break

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- 11.00 High temperature low-cycle fatigue of Hastelloy X and Inconel 617 in air and HTGR helium  
by J. P. Strizak, C. R. Brinkman and P. L. Rittenhouse
- 11.30 Fatigue and creep fatigue behaviour of high temperature alloys for HTR application  
by H.-P. Meurer, H. Breitling and E. D. Grosser

12.00 Lunch

SESSION V - INTERACTION OF MATERIALS PROPERTIES  
AND DESIGN

Chairman: D. I. Roberts

- 13.30 Creep rupture behaviour, a criterion for the design of metallic HTR components with high application temperatures  
by F. Schubert, H. J. Penkalla and G. Ullrich
- 14.00 Implications of materials behaviour on design codes  
by D. I. Roberts
- 14.30 Round Table Discussion

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