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9^{ème}
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May 31 - June 1, 1979

Editors:
B. Kanellakopoulos, L. Manes
Institut für Heiße Chemie
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Kernforschungszentrum Karlsruhe

KERNFORSCHUNGSZENTRUM KARLSRUHE

Institut für Heiße Chemie

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9^{ème} Journée des Actinides

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Editors: B. Kanellakopulos
L. Manes^{x)}

^{x)} European Institute for Transuranium Elements

Kernforschungszentrum Karlsruhe GmbH, Karlsruhe

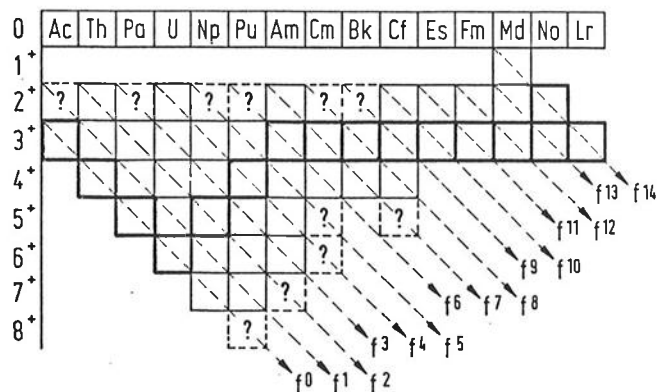
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9ème JOURNEE DES ACTINIDES
 May 31 - June 1, 1979

PLACE:

SCHULE FÜR KERntechnik
 KFK KARLSRUHE



ORGANIZATION:

B. Kanellakopoulos, KFK-KARLSRUHE/IHCH

L. Manes, EUROP. INSTITUTE FOR TRANSURANIUM ELEMENTS

Introduction

The series of the "Journées des Actinides", coming now to its ninth edition, have represented a useful occasion for researchers of different European Laboratories to exchange results and ideas. They have been mostly dedicated to the physics, chemistry and physical chemistry of the solid state of actinides, metals and compounds. They have taken place at different sites, sponsored, in turn, by a different Laboratory or Institution: thus, personal contacts and discussions have been stimulated.

The special feature of these conferences has been their informality. In the "Journées", researchers may present, at their will, completed works or just work being performed and even puzzling results or ideas, in the hope of being enlightened and helped, during the Journées, by others. Another feature has always been the strong interdisciplinarity of these conferences: in them, the physicist learns, for instance, how difficult the preparation of the "exotic" sample is, which he uses for his measurements, the chemist deepens his knowledge by following "exotic" theoretical treatments of the actinide physics.

In presenting the Proceedings of the "9^{ème} Journée des Actinides", held in Karlsruhe from May 31 to June 1, 1979, we are happy to realize that the features above mentioned have been amply respected: in fact, they are essential to the success of the "Journée". In addition, we are happy to see that the field of actinide research is continuously expanding, as proved by the interest and the work of Laboratories not present in precedent editions, and by the inspiring results in all fields, which have been discussed.

It is necessary to clarify the spirit of the Proceedings that we offer; they respect the feature of informality of the Journée. They contain therefore already published work (which is referenced) as well as uncomplete results and even abstracts. It is reminded that the choice, whether to appear with a written text or with an abstract only was left to individual authors.

In concluding these introductory remarks, we express the hope that new and inspiring "Journées" will take place, giving other Laboratories the chance (and the head-ache) of organizing and us the opportunity of learning.

We wish to thank all Participants, and the Organizations sponsoring
the Journée:

Basil KANELLAKOPULOS
Kernforschungszentrum Karlsruhe GmbH,
Karlsruhe

Livio MANES
European Institute for Transuranium
Elements, Joint Research Center of
the European Commission, Karlsruhe

P R O G R A M M E

9ème JOURNEE DES ACTINIDES

Thursday, May 31, 1979

9 h 00 Welcoming of the participants

I. Solution chemistry (B. Kanellakopulos)

9 h 15 Reactions of f-Groups Ions with Sulfur Donors Ligands
R. FITOUSSI, C. MUSIKAS (C.E.N. Fontenay-aux-Roses)

9 h 30 Eu(II) - Complex Formation in Solution
G. LE MAROIS, C. MUSIKAS (C.E.N. Fontenay-aux-Roses)

9 h 45 Preparation and X-Ray Analysis of $(\eta^5\text{C}_5\text{H}_5)\text{UCl}_3 \cdot 2\text{hma}$,
Trichloro (Cyclopentadienyl)bis (hexamethylphosphoramide)
uranium(IV)
F. BENETOLLO, G. BOMBIERI, G. DE PAOLI, P. ZANELLA (Laboratorio di Chimica e Tecnologia dei Radioelementi del C.N.R. Padova), K.W. BAGNALL (University of Manchester)

10 h 00 Chimie du Mendeleevium : l'état Monovalent du Mendeleevium n'est pas observé en Solution aqueuse.
F. DAVID, K. SAMHOUN (Institut de Physique Nucléaire, Orsay)
E.K. HULET, P.A. BAISDEN, R. DOUGHAN, J.H. LANDRUM,
R.W. LOUGHEED, J.F. WILD (Lawrence Livermore Lab.),
G.D. O'KELLEY (Oak Ridge Nat. Lab.)

II. Préparation and Characterisation (W. Müller)

- 10 h 15 Preparation and Single Crystal Growth of Protactinium Arsenides by Chemical Vapour Transport
C. CALESTANI, J.C. SPIRLET, J. REBIZANT, W. MÜLLER
(European Institute for Transuranium Elements)
- 10 h 30 Quelques résultats récents de recherches sur les composés d'Actinides
A. WOJAKOWSKI (Institut des Basses Températures et des Recherches Structurales de l'Académie Polonaise des Sciences).
- 10 h 45 Low Temperature X-Ray Diffraction of Actinide Compounds.
U. BENEDICT, C. DUFOUR (European Institute for Transuranium Elements)
- 11 h 00 Determination of Trace Elements in High Purity Actinides by Inductively-Coupled Argon Plasma, Multielement Atomic Spectroscopic Technique (ICAP-MAES)
A. GAUTHIER, H. KUTTER, F. KINNART (European Institute for Transuranium Elements)
- 11 h 15 Break

III. Structure , thermodynamics, magnetism (L. Manes)

- 11 h 45 Phase Transition of ThBr_4 and ThCl_4
P. DELAMOYE, S. HUBERT, S. LEFRANT, J.C. KRUPA (Université de Paris Sud, Orsay)
- 12 h 05 Etude par Thermochromatographie des Fluorures et Oxyfluorures de Plutonium
B. JOUNIAUX, Y. LEGOUT, J. MERINIS, G. BOUSSIERES (Institut de Physique Nucléaire, Orsay)

- 12 h 20 Ternary Plutonium Compounds $\text{Pu}_2\text{O}_2\text{Y}$ (Y = O, S, Se, Te) :
Crystallographic and Magnetic Properties
J.M. COSTANTINI, D. DAMIEN, C.H. DE NOVION (C.E.N.
Fontenay-aux-Roses), M. COUSSON, M. PAGES (Laboratoire
Curie, Paris)
- 12 h 35 Discussion
- 13 h 00 Lunch
- 14 h 30 Enthalpy of Formation of Americium Dioxide and Estimate
of Enthalpy of Formation of Aqueous Americium (IV) - Ion.
L.R. MORSS, J. FUGER (Université de Liège)
- 14 h 45 Specific Heat of Plutonium Carbides
R. HALL, H.R. HAINES, M.J. MORTIMER (AERE Harwell),
D. McELROY (ORNL)
- 15 h 00 News from Uranium-Sulfur System : on the Synthesis and the
Magnetic Properties of the Uranium Polysulfide U_2S_5
H. NOEL (Université de Rennes)
- 15 h 15 Magnetic Properties of NpAs_2
M. BOGE, J. CHAPPERT, A. BLAISE, J-M. FOURNIER (C.E.N.
Grenoble), D.DAMIEN (C.E.N. Fontenay-aux-Roses),
J. REBIZANT, J.C. SPIRLET (European Institute for
Transuranium Elements)
- 15 h 30 Magnetic Susceptibility of Pentavalent Uranium Oxyhalides
J.C. LEVET, H. NOEL (Université de Rennes)
- 15 h 45 EPR of Gd^{3+} in Actinide Compounds
G. AMORETTI, D.C. GIORI, V. VARACCA (C.N.R. e Istituto
di Fisica, Università di Parma), J.C. SPIRLET (European
Institute for Transuranium Elements)

16 h 00 Break

IV. Spectroscopic studies (M. Pagès)

- 16 h 20 Neutron Diffraction Study of AmO_2
A. BOEUF ⁺, J.M. FOURNIER ⁺⁺, J.F. GUEUGNON ⁺⁺⁺, L. MANES ⁺⁺⁺,
J. REBIZANT ⁺⁺⁺, F. RUSTICHELLI ⁺ (⁺ Ispra Establishment
of the Commission of the European Communities, and Institute
Laue-Langevin, Grenoble, ⁺⁺ C.E.N.-Grenoble, ⁺⁺⁺ European
Institute for Transuranium Elements)
- 16 h 35 E.S.C.A. Study of Uranium (IV) Halides
E. THIBAUT, J.P. BOUTIQUE, J. VERBIST (Université de
Namur), H. NOEL, J.C. LEVET (Université de Rennes)
- 16 h 50 Photoemission (UPS/XPS) Studies on UAl_2
J. NAEGELE, L. MANES, N. NOLTE (European Institute for
Transuranium Elements), J.M. FOURNIER (C.E.N.-Grenoble)
- 17 h 05 State of Angular Resolved Photoemission on the Compound
USb.
Y. BAER ⁺, R. BAPTIST ⁺⁺, M. BELAKHOVSKY ⁺⁺⁺, M.S.S. BROOKS ⁺⁺,
O. VOGT ⁺ (⁺ Laboratorium für Festkörperphysik, ETH-Zürich,
⁺⁺ European Institute for Transuranium Elements, ⁺⁺⁺ C.E.N.
Grenoble)
- 17 h 20 Preliminary Observation of Low Temperature Defect Interactions
in Cubic $^{241}\text{AmO}_2$ from Mössbauer Emission Spectroscopy.
J. FRIED, R. POINSOT (C.R.N. - Strasbourg), J. REBIZANT
(European Institute for Transuranium Elements)
- 17 h 35 Discussion
- 18 h 00 Departure

Friday, June 1, 1979

V. Theoretical studies (P. Fulde)

- 9 h 00 Mössbauer Effects on Susceptibility Studies of the non-stoichiometric NpO_{2-x}
J. GAL (Beersheva / Israel), C. MUSIKAS (C.E.N. Fontenay-aux-Roses), A. COUSSON, G. JOVET, M. PAGES (Laboratoire Curie, Paris).
- 9 h 15 Mössbauer Effects on Magnetisation Studies of the Monoclinic NpSe_3
G. JOVET, A. COUSSON, M. PAGES (Laboratoire Curie, Paris)

D. DAMIEN, C. COSTANTINI (C.E.N. Fontenay-aux-Roses)
J. GAL (Beersheva / Israel)
- 9 h 30 Strongly Correlated Electron Bands and Magnetism in Transition Metals Application to Actinide Metals and Compounds
K.A. LONG (European Institute for Transuranium Elements)
- 10 h 00 On the Peculiarities of the Cohesive Energies of the Lanthanide Metals
B. JOHANSSON (FOA, Stockholm)
- 10 h 30 Kondo Effect in U, Np, and Pu Metals
V. DALLACASA (C.N.R. e Istituto di Fisica, Università di Parma)
- 11 h 00 Break

- 11 h 30 Self Consistent Band Structure Calculations for Fluorite
Structure Compounds
M.S.S. BROOKS, P.J. KELLY (European Institute for Transuranium
Elements)
- 12 h 00 Die konsistente Interpretation des spektroskopischen und
magnetischen Verhaltens des $5f^1$ - Elektronensystems in
oktahedrischen Halogenverbindungen von Protactinium (IV)
Uran (V) und Neptunium (VI)
K. EICHBERGER, F. LUX (Institut für Radiochemie der
Technischen Universität München)
- 12 h 30 Discussion
- 13 h 00 Lunch

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