

J. P. FOURNIER



19èmes

Journées des Actinides

March 29-31 1989
Madonna di Campiglio
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Organized by
P. ZANELLA
Istituto di Chim. e Tecnologia
dei Radioelementi del C.N.R.
Corso Stati Uniti, 4
35020 PADOVA - ITALY

and

G. BOMBIERI
Istituto di Chim. Farmaceutica e
Tossicologica - Università di Milano
Viale Abruzzi, 42
20131 MILANO - ITALY

On behalf of all the participants we would like to thank the Istituto di Chimica e Tecnologia dei Radioelementi, C.N.R. PADOVA, the Italian National Research Council and M. Braun GmbH for their financial contribution to this event and F. BENETOLLO and U. CASELLATO for their efficient help in the organization of this Conference.

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We thank the management of the HOTEL DES ALPES, for their care and hospitality during the Conference.

We wish all participants a pleasant stay in MADONNA di CAMPIGLIO and fruitful "JOURNEES des ACTINIDES".

G. Bombieri
P. Zanella

March, 15, 1989

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P R O G R A M

Tuesday, March 28	Wednesday, March 29	Thursday, March 30	Friday, March 31
16.00 Registration 20.00 Dinner 21.30 - 23.00 I Posters	8.00 Registration 9.00 - 9.15 Welcome Address 9.15 - 10.35 II Phys. and Chem. Properties 10.35 - 11.00 Coffee Break 11.00 - 12.20 III Phys. and Chem. Properties 12.30 - 17.30 Lunch Free Time 17.30 - 19.10 IV Phys. and Chem. Properties 20.00 Dinner 21.30 - 23.00 I Posters (cont.)	9.00 - 10.40 V Chemistry 10.40 - 11.00 Coffee Break 11.00 - 12.20 VI Solid State 12.30 - 17.30 Lunch Free Time 17.30 - 19.40 VII Solid State 20.30 Farewell Dinner	9.00 - 10.00 VIII Solid State 10.15 - 10.45 Round Table 10.45 - 11.10 Coffee Break 11.10 - 12.00 Summary and Perspectives 12.30 Lunch ARRIVEDERCI!!!!!!

TUESDAY, MARCH 28, 1989

16.00 - 19.30 REGISTRATION

20.00 DINNER

21.00 - 23.00 SESSION I : POSTERS

- P1 Three Related Organouranium(IV) Compounds,
 $\text{Cp}_3\text{U}(\text{NCBH}_3)(\text{NCH}_3)$, $[\text{Cp}_3\text{U}(\text{NCCH}_3)_2]_2(\text{UCl}_6) \cdot \text{NCCH}_3$ and
 $[\text{Cp}_3\text{U}(\text{NCCH}_3)_2]_2(\text{UO}_2\text{Cl}_4) \cdot \text{NCCH}_3$: Their Crystal
Structures and Most Plausible Pathways of
Formation.
M.Adam, H.Aslan, F.Benetollo, G.Bombieri, R.D.
Fischer and K.Yunlu
- P2 Cp_3ThNCS : Preparation and Intercalation with
Aliphatic Nitriles and Cyclohexylisonitrile.
The First Trigonal Bipyramidal Metallocene Compounds
of Tetravalent Thorium.
C.Apostolidis, J.Rebizant, M.Ougier, R.Maier and
B.Kanellakopoulos
- P3 α -decay of ^{225}Ac to ^{221}Fr levels.
M.C.Kouassi, J.Dalmasso, H.Maria, and G.Ardisson
- P4 Transport Properties of $\text{UP}_{1-x}\text{S}_x$ Solid Solutions.
H.Bartolin, E.Nigrelli, C.Bréandon, R.Tchapoutian,
K.Mattenberger and O.Vogt
- P5 Analogous Pentadienyl and Cyclopentadienyl Uranium
Borohydrides.
D.Baudry

- P6 Spectrophotometric Evidence for Mixed Hydroxo-Carbonate Complexes of Np(V) in Alkaline Carbonate Solutions.
M.S.Caceci, C.Riglet and P.Vitorge
- P7 Synthesis and Properties of Mono-Homo and Heterodinuclear Complexes Containing f-Ions.
 E.Bullita, U.Casellato, P.Guerriero, S. Tamburrini and P.A.Vigato
- P8 Photoacoustic Determination of Neptunium in Nuclear Reprocessing Raffinates.
 B.Stahr, W.Faubel, P.M.Menzler, and H.J.Ache
- P9 Valence and Magnetic Behaviour of $\text{MBa}_2\text{Cu}_3\text{O}_7$ for M= Pr, Nd, and Cm.
 L.Soderholm, G.L.Goodman, C.K.Loong and C.W.Williams
- P10 Thermodynamics of Some Neptunium Complex Oxides
 Enthalpy of Formation of $\alpha\text{-Na}_2\text{NpO}_4$, $\beta\text{-Na}_2\text{NpO}_4$, $\beta\text{-Na}_4\text{NpO}_5$, K_2NpO_4 and CaNpO_4 .
J.Goudiakas and J.Fuger
- P11 ^{237}Np Mossbauer Spectroscopy of Some Ionic Hepta and Hexavalent Oxoneptunates.
L.He, J.Jove, J.Proust and M.Pagès
- P12 Specific Heat and Magnetic Behaviour of UTGe and UTSi Compounds.
 E.Brück, F.R.de Boer, L.Havela, V.Sechovsky and K.H.J.Buschow
- P13 Electronic Microscopy Determination of the Tru Cell of the Rhombohedral R_{III} Phase in the U-La-O System.
P.Herrero, P.Garcia-Chain and R.M.Rojas

- P14 U/Y-Substitution in $U_xY_{1-x}Cu_{2+y}Si_{2+y}$, $0 \leq x \leq 1$;
 $0 \leq y \leq 0.2$.
K.Hiebl, P.Rogl, Ch.Horvath and H.Noel
- P15 The Tetrad Effect in the Actinide Complexation
Characteristics.
V.G.Vokhmin and G.V.Ionova
- P16 Structural and Mossbauer (^{237}Np) Studies of Mixed
Valence Actinide Oxides.
M.Gasperin, A.Cousson, L.He and J.Jové
- P17 New Ternary Uranium - Transition Metal Pnictides of
the UMX_2 - and UM_2X_2 -Type.
D.Kaczorowski
- P18 A Study of UP and UTe by μSR .
K.Aggarwal, L.Asch, F.N.Gygax, O.Hartmann,
G.M.Kalvius, A.Kratzer, F.J.Litterst, K.Mattenberger
A.Schenck and O.Vogt
- P19 Crystal Field Analysis of Np^{4+} in ThO_2 .
M.P.Lahalle, J.C.Krupa and C.Rizzoli
- P20 Crystal-Field Spectroscopy of PuO_2 with Pulsed
Neutrons.
S.Kern, C.K.Loong, G.L.Goodman, B.Cort and
G.H.Lander
- P21 Synthesis and Characterization of NpIn_3 and NpTl_3 .
J.Larroque and M.Beauvy
- P22 Investigations of Actinides Complexes for the
Separation Chemistry.
J.Livet, C.Musikas and X.Vitart

- P23 Mixed Valence in the Spinless Falicov-Kimball Model.
J.Jedrejewski, J.Lach and R.Lyzwa
- P24 Alkyl Derivatives of Uranium(IV)
Poly(pyrazolyl)borate Complexes.
N.Marques, A. Pires de Matos, I.Santos and M.Silva
- P25 Spectroscopy Investigation of Tri- and Tetravalent
Solid Americium Compounds.
K.Mayer, C.Apostolidis and M.Ougier
- P26 Divalent Plutonium: Electronic Structure and
Properties of Halogen Compounds.
V.K. Mikhailko, T.V.Mikhailina and G.V.Ionova
- P27 EXAFS Study on the Organic Solutions of Uranyl and
Uranium(IV).
A.Navaza, P.Charpin and M.Nierlich
- P28 Magnetic Properties of the Uranium Diselenide
Gamma- USe_2 .
H.Noel
- P29 Electron Impact-Induced Loss of C_6H_6 from Ions of
the Type $((CH_3C_5H_4)_3UX)^+$ and Several Fragments
there of: A critical Comparison with Related
 $(CH_3C_5H_4)_3Ln^{III}$ Species.
R.D.Fischer, J.Forster, G.Paolucci, R.Seraglia and
P.Traldi
- P30 Electrical Resistivity of the $Pu_{1-x}Y_xSb$ Solid
Solution.
E.Pleska, J.M.Fournier, J.Chiapusio,
J.Rossat-Mignod, J.Reibizant, J.C.Spirlet and O.Vogt

- P31 The Crystal Structure Analysis of
 $[U(C_5H_5)(CH_3CO_2)_2]_4O_2$: A Tetrameric Cyclopentadienyl
 Acetato Complex of Uranium(IV).
J.Rebizant, C.Apostolidis, M.R.Spirlet, and
 B.Kanellakopulos
- P32 The Crystal Structure Analysis of a New
 Plutonium(IV) Nitrate Hydrate:
 $[Pu(OH)(NO_3)_3(H_2O)_2]_2 \cdot 5H_2O$.
J.Rebizant, C.Apostolidis, M.Boehm, and G.Hoffmann
- P33 Borocarbides of Neptunium $NpBC$ and NpB_2C .
P.Rogl, M.Beauvy and J.Larroque
- P34 Microdomains Formation and Oxidation State of
 Uranium in U-La-O System.
 P.Garcia-Chain, P.Herrero and R.M.Rojas
- P35 Influence of Uranium Oxides on the Reactivity and
 Surface Properties of Pt-Based Catalyst.
M.Romeo, K.Bak, A.Dauscher, L.Hilaire, W.Muller and
 G.Maire
- P36 Metallurgical Aspects and Magnetism of $UFeAl$ and
 $UFeGa$.
V.Sečovský, L.Havela, E.Bruck, F.R.de Boer and
 K.H.J.Buschow
- P37 Dioxouranium(VI) Nitrate and Acetate Adducts with
 2,6-Dimethyl-4H-Pyran-4-One.
S.Sitran and D.Fregona
- P38 Advance in the Preparation Chemistry of Transuranium
 Elements.
J.C.Spirlet, F.Wastin, C.Rijkeboer and J.Rebizant

- P39 Comparative Structural Study Two Novel Indenyl Complexes of Thorium: $\text{Th}(\text{C}_9\text{H}_6\text{-C}_2\text{H}_5)_3 \text{Cl}$ (I) and $\text{Th}(\text{C}_9\text{H}_6\text{-C}_2\text{H}_5)_3\text{CH}_3$ (II).
M.R.Spirlet, J.Rebizant, S.Bettonville and J.Goffart
- P40 Search for the Uranium Compounds with High Curie Point.
W.Suski, A.Baran, T.Mydlarz, H.Figiel, J.Opila and K.Turek
- P41 Magnetic Properties of $\text{U}_{1-x}\text{Th}_x\text{Mn}_2\text{Si}_2$ and $\text{U}(\text{Mn}_{1-x}\text{Fe}_x)_2\text{Si}_2$.
W.Bazela and A.Szytula
- P42 Spin-Glass Behaviour of UCuSi and UCuGe .
V.H.Tran and R.Troc
- P43 Generalized N_p , N_n Scheme and Asymmetric Nuclear Fission.
C.Ythier and G.Mouze
- P44 Ternary Uranium Stannides of the UM_2Sn_2 -Type.
D.Kaczorowski and Z.Zolnierek
- P45 Photocatalytic Deposition of Uranium Oxides Onto Semiconductor Suspensions.
R.Amadelli, O.Traverso, P. Zanella and V.Carassiti

WEDNESDAY, MARCH 29, 1898

8.00 REGISTRATION (continued)

9.00 - 9.15 WELCOME ADDRESS

9.15 - 10.35 SESSION II : PHYSICAL AND CHEMICAL PROPERTIES

Chairperson : W. MULLER

C1 Recent Surprises in Electronic Structure,
Spin-pairing Energy and Spectroscopy of
Transthorium(5f) and 4f Compounds.

C.K. Jorgensen

C2 Theory of Anisotropic Hybridization-Broadened
Magnetic Responce in Uranium Systems.

B.R. Cooper and Gong-Jia Hu

C3 Electronic and Magnetic Properties of the
 $\text{NpSb}_{1-x}\text{Te}_x$ Solid Solutions from Mössbauer
Spectroscopy.

J.P. Sanchez, K. Tomola, J. Rebizant, J.C.
Spirlet and O. Vogt

C4 Magnetic Phase Diagram of the $\text{U}(\text{Co}_{1-x}\text{Cu}_x)_2\text{Ge}_2$
Solid Solutions.

M. Kuznietz, H. Pinto, S. Fredo and M.
Melamud

10.35 - 11.00 COFFEE BREAK

11.00 - 12.20

SESSION III : PHYSICAL AND CHEMICAL PROPERTIES

Chairperson : R. TROC

C5 The Cancellation of Orbital and Spin Magnetism in UFe_2 .

M. Wulff, G.H. Lander, J. Rebizant, J.C. Spirlet, B. Lebech and M. Guillot

C6 Resonance Paramagnetique Electronique de l' Uranium Trivalent dans un Compose en Poudre.

E. Soulié et P. Lesieur

C7 Magnetic Behaviour of $NpSn_3$ Under High Pressure.

S. Zwirner, J. Moser, U. Potzel, W. Potzel, F.J. Litterst, G.M. Kalvius, J. Gal and J.C. Spirlet

C8 Magnetic Structures in the $U(Co_{1-y}Ni_y)_2Ge_2$ and $U(Ni_{1-z}Cu_z)_2Ge_2$ Systems - Preliminary Results.

M. Kuznietz, H. Pinto, S. Fredo and M. Melamud

12.30 - 17.30

LUNCH and FREE TIME

17.30 - 19.20

SESSION IV : PHYSICAL AND CHEMICAL PROPERTIES

Chairpersons : P. ERDÖS and P. WACTHER

C9 Molecular Orbital Cluster Calculations on $MBa_2Cu_3O_7$ for $M = Y, Pr, Nd, Ho$ & Cm .

G.L. Goodman, D.E. Ellis and L. Soderholm

C10 New Developments in the Study of the Charge-Density Wave in Alpha Uranium.

G.H. Lander

C11 Structure and Hydration of Trivalent Aquo Lanthanide and Actinide Ions.

F. David and B. Fourest

C12 Photoemission Study (XPS, UPS) of the Electronic Structure of PuSe.

J.R. Naegele, F. Schiavo and J.C. Spirlet

C13 Ethane Hydrogenolysis Studies on UNi_x and UO_2/Ni Catalysts.

K. Zikou, T. Almeida, W. Bartscher, J.R. Naegele and J.C. Spirlet

A1 Braun GmbH Apparatus Presentation.

G. Hinrichs

20.00

DINNER

21.30 - 23.00

SESSION I : POSTERS (continued)

THURSDAY, MARCH 30, 1989

9.00 - 10.40 SESSION V : CHEMISTRY

Chairperson : J. FUGER

C14 Detailed Studies of the Charge Distribution in Actinide Organometallics with Different Site Symmetry of the Central Ion.

R. Maier, B. Kanellakopoulos, C. Apostolidis, J. Rebizant and M.R. Spirlet

C15 Organo f-Element Thermochemistry Thorium and Uranium-Ligand Bond Disruption Enthalpies in Tris(indenyl)actinide Hydrocarbyls.

S. Bettonville, J. Goffard and J. Fuger

C16 Investigations of Actinides Complexes for the Separation Chemistry.

C. Musikas, J. Livet, N. Condamines and B. Castelli

C17 Uranium(IV) Chloride Species Involved in Solvent Extraction Using P=O Ligands.

J.G.H. du Preez and K.B. Morris

C18 Complex Halides of Tervalent Uranium.

J. Drozdzyński

10.40 - 11.00 COFFEE BREAK

10.50 - 12.30 SESSION VI : SOLID STATE PHYSICS

Chairperson : J. ROSSAT-MIGNOD

C19 Hall Effect and High Temperature Resistivity Measurements in $UCuP_2$ and UCu_2P_2 Single Crystals.

J. Schoenes, N. Korner and D. Kaczorowski

C20 Magnetic Properties of $\text{NpSb}_{0.95}\text{Te}_{0.05}$ Single Crystals.

J. Rebizant, J.C. Spirlet, K. Mattenberger and O. Vogt

C21 Observation of Phase Transitions in $\text{Tris}(\text{Cyclopentadienyl})\text{ChloroUranium}(\text{IV})$ $(\text{C}_5\text{H}_5)_3\text{UCl}$ by Neutron Diffraction.

Ph. Raison, P. Schweiss, A. Delapalme, M.R. Spirlet and B. Kanellakopulos

C22 High Resolution Neutron Spectroscopy of Crystal Field Excitations in NpO_2 .

J.M. Fournier, A. Blaise, J. Larroque, G. Amoretti, R. Caciuffo, M. Hutchings, R. Osborn and A. Taylor

12.30 - 17.30 LUNCH and FREE TIME

17.30 - 19.40 SESSION VII : SOLID STATE PHYSICS

Chairpersons : J. SCHOENES and G.M. KALVIUS

C23 Magnetic Frustration in UFe_4Al_8 and NpFe_4Al_8 Intermetallics.

J. Gal, I. Yaar, E. Arbaboff, D. Regev, G. Shani, F.J. Litterst, K. Aggarwal, J.A. Pereda, W. Potzel, G.M. Kalvius, W. Suski, G. Will and W. Schäfer

C24 High-Pressure Study of Plutonium Monoarsenide.

S. Dabos-Seignon, U. Benedict, J.C. Spirlet and M. Pagès

C25 Electronic Properties of UNiAl.

L. Havela, V. Sechovsky, E. Brück, F.R. de Boer, J.B. Bouwer, A. Menovsky, J.M. Fournier, M. Wulff, K.H.J. Buschow and A.V. Andreev

C26 Electronic Structure of Actinide Compounds from L_{III} -XANES Studies.

S. Bertram, G. Kaindl, J. Jove, M. Pagès, J. Gal, O. Vogt, J. Rebizant and J.C. Spirlet

18.50 - 19.00 BREAK

C27 Heavy Fermion Characteristics in the Optical Conductivity Spectrum of U_2PtC_2 .

F. Marabelli and P. Wachter

C28 Electrical Resistivity of Plutonium Monochalcogenides.

E. Pleska, J.M. Fournier, J. Chiapusio, J. Rossat-Mignod, J. Rebizant, J.C. Spirlet and O. Vogt

20.30 FAREWELL DINNER

FRIDAY, MARCH 31, 1989

9.00 - 10.00 SESSION VIII : SOLID STATE PHYSICS

Chairperson : G. AMORETTI

C29 On the Magnetic Behaviour of the Americium Ion in AmO_2 , Am_2O_3 , SrAmO_3 , BaAmO_3 and in the Oxidic Superconductive Materials $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ and $\text{LaBa}_2\text{CuO}_{7-x}$.

B. Kanellakopoulos, K. Mayer, J. Brand and B. Powietzka

C30 ^{237}Np Mössbauer Spectroscopy of Amorphous Compounds.

L. He, J. Proust, M. Pagès, C. Madic, J. Litterst and J. Gal

C31 Clustering in Actinide Oxides: Progress in Spectroscopy and Physical Properties.

M. Beauvy, J. Larroque, F. Surle and G. Cecilia

10.15 - 10.45 ROUND TABLE ON EUROPEAN FINANCIAL SOURCES

Chairperson : H. BARTHOLIN

10.45 - 11.10 COFFEE BREAK

11.10 - 12.00 CONFERENCE SUMMARY AND PERSPECTIVES

12.30 LUNCH and "ARRIVEDERCI"