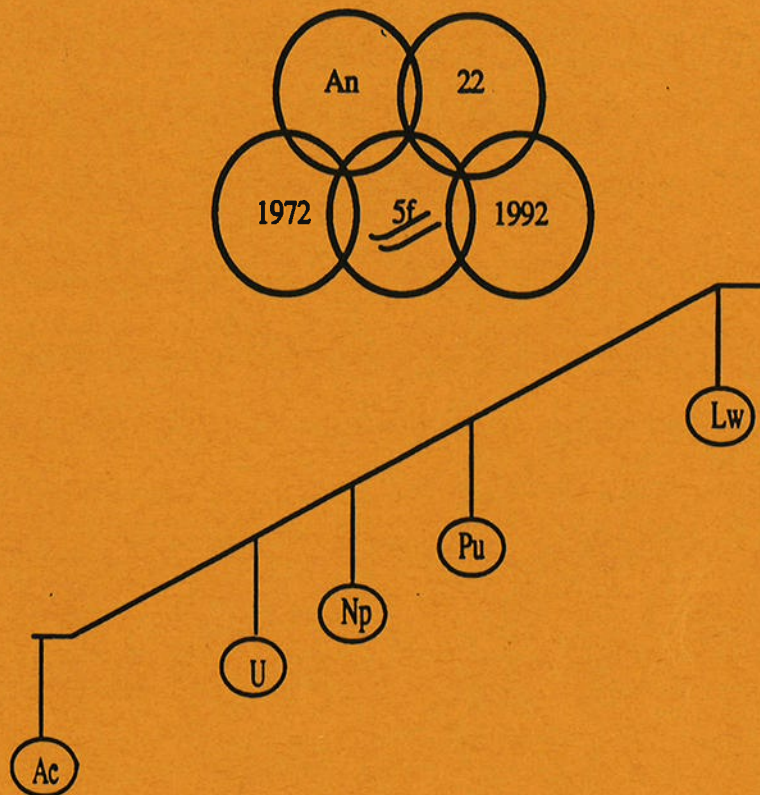


G. H. Lander

**22ièmes Journées des Actinides  
22-25 April 1992  
Méribel**



Organized by : A. Blaise, P. Burette, J.M. Fournier, J.P. Sanchez.  
(CEN-Grenoble).

C. Vettier, (ESRF-Grenoble).

Sponsored by : Commission of the European Communities.  
European Synchrotron Radiation Facility.

## GENERAL INFORMATION

**Organizers wear colored badges**

**Oral communications :**

All speakers will have 15 minutes to present their communications, including discussion.

**Posters      Session A**

The posters should be on display from thursday morning until the end of the session at 22.30

**Session B**

The posters should be on display from friday morning until the end of the session at 19.30

**Reminders**

Financial matters are to be arranged during registration. In case of any need, do not hesitate and contact one of the organizers

Hotel extras should be paid to the hotel cashier at latest when checking out (Saturday April 25 at 12.00)

## PROGRAM

### **WEDNESDAY, APRIL 22**

- 16.00 - 20.00      REGISTRATION  
19.00 - 20.30      WELCOME PARTY  
21.00                DINNER

### **THURSDAY, APRIL 23**

- 8.00 - 8.45        REGISTRATION  
8.45 - 9.00        WELCOME ADDRESS  
9.00 - 10.30      SESSION I : SOLUTION CHEMISTRY AND REPROCESSING

Chairperson : J. LIVET

- 1-1      Electrochemical properties and thermodynamic stability of plutonium and neighbour actinides in the oxydation states (V) - (IV) in aqueous alkaline solutions  
V.F. Peretrukhin, F. David and A.G. Maslennikov
- 1-2      Carbonate complexation of Neptunium (V)  
V. Neck, J.I. Kim and B. Kanellakopoulos
- 1-3      Sorption behaviour of redox sensitive actinides on natural minerals  
S. El-Waer, K.E. German and V.F. Peretrukhin
- 1-4      Plutonium isotope separation via electrochemical reduction of plutonium (III) ions to amalgams in aqueous solutions  
A. Yu. Garnov, S.I. Nikitenko, A.G. Maslennikov and V.F. Peretrukhin
- 1-5      Picolinamides, a possible family of actinide extractants, for the one step actinide (VI), (IV) and (III) separation from the spent nuclear fuels dissolution liquors  
C. Musikas, C. Cuillerdier and C. Coutin
- 1-6      Redox and extraction chemistry of actinides U, Np, Pu, Am complexed with the phosphotungstate ligand :  $P_2W_{17}O_{61}^{10-}$   
J.M. Adnet, C. Madic and J. Bourges

10.30 - 11.00 COFFEE BREAK

11.00 - 12.30 SESSION II PHYSICAL PROPERTIES : Pnictides and Chalcogenides

Chairperson : J. Schoenes

- 2-1 Sources of anisotropy in Actinide and Rare Earth exchange interactions  
B.R. Cooper and Q.G. Sheng
- 2-2 High pressure resistance study of UTe and USe  
P. Link, U. Benedict, J. Wittig and H. Wühl
- 2-3 Magnetic dilution of UTe with YTe  
K. Mattenberger and O. Vogt
- 2-4 Magnetization, neutron and resonant magnetic X-ray study of  $U_{0.85}Th_{0.15}Sb$   
J.A. Paixao, G.H. Lander, C.C. Tang, W.G. Stirling, D. Gibbs, A. Blaise, P. Burlet,  
P.J. Brown and O. Vogt
- 2-5 Magnetic properties of  $NpSb_{0.95}Te_{0.05}$  from  $^{121}Sb$  transferred hyperfine field measurements  
M.N. Bouillet, J.P. Sanchez, K. Tomala, P. Burlet, J. Rebizant, J.C. Spirlet and  
O. Vogt
- 2-6 Resonant magnetic X-ray scattering of NpAs  
S. Langridge, W. Stirling, G.H. Lander, Rebizant, J.C. Spirlet and D. Gibbs

12.30 - 14.00 LUNCH

14.00 - 15.30 SESSION III SOLID STATE CHEMISTRY AND CRISTALLOGRAPHY

Chairperson : P. ROGL

- 3-1 Some new aspects of coordination behaviour of pentavalent Neptunium and Americium  
A.M. Fedoseev and N.A. Budantseva
- 3-2 Synthesis, structure and some properties of Neptunium (V) malonates and benzoates  
N.N. Krot, I.A. Charushnikova and M.S. Grigoriev
- 3-3 Pressure-induced structural transitions in Actinides and Lanthanides  
U. Benedict
- 3-4 Review on X-ray diffraction study under pressure of actinide dioxides  
J.P. Dancausse and U. Benedict

15.30 - 16.00 COFFEE BREAK

16.00 - 17.30 SESSION IV PHYSICAL PROPERTIES : TERNARY COMPOUNDS

Chairperson : V. SECHOVSKY

- 4-1 The crystallographic and magnetic structure of  $U_4Cu_4P_7$  as pictured in its transport properties  
J. Schoenes, D. Kaczorowski and C. Beeli
- 4-2 Structure, magnetic and related properties of  $UNi_{10x}Cu_xSi_2$  intermetallics  
W. Suski, J. Janczak, A. Zaleski, D. Badurski, L. Folcik and K. Wochowski
- 4-3 Magnetic phase diagram of the U  $(Ni_{1-x}Cu_x)_2 Ge_2$  system  
M. Kuznietz, H. Pinto and M. Melamud
- 4-4 Neutron diffraction and AC-Susceptibility studies of the magnetic structure of the solid solutions U Co Ni Si<sub>2</sub> and U Ni Cu Si<sub>2</sub>  
M. Kuznietz, G. André and F. Bourée
- 4-5 Magnetism of Uranium and Rare Earth  $MT_2X_2$  compounds  
J. Leciejewicz and A. Szytula

19.30 - 21.00 DINNER

21.00 - 22.30 POSTER SESSION A

- A-1 Structure analysis of  $Na_2UI_6$   
K. Maletka, P. Fischer, A. Murasik and W. Szezepaniak
- A-2 Crystal structures of two cesium neptunates (VII)  
M.S. Grigoriev, N.A. Baturin, I.G. Tananaev and N.N. Krot
- A-3 Preparation, characterization and single crystal growth of Iron-Actinide compounds with Th  $Mn_{12}$ - type structure  
A.P. Gonçalves, R.T. Henriques, G. Bonfait, M. Almeida and J.C. Spirlet
- A-4 Progress in the preparation and characterization of Actinide compounds  
J.C. Spirlet, J. Rebizant, Y. Kergadallan, J. Kalbusch, A. Moens and C. Rijkeboer
- A-5 Synthesis and characterization of quasicrystalline materials  
N. Athanasiou, I. Ray, J.C. Spirlet and C. Politis
- A-6 Crystal and molecular structure of Bis (hydrotris (pyrazol-1-yl)borate) actinoid (IV) - dichlorides of Thorium, Uranium and Neptunium  $(HBPz_3)_2 An Cl_2$   
C. Apostolidis, D. Meyer, J. Rebizant, R. Maier, B. Kanellakopoulos, N. Marques, A. Pires de Matos and I. Santos

- A-7 The Kinetics of continuous bulk crystallization of tetravalent Neptunium oxalate hexahydrate  
V.I. Kareta, S.E. Grushevsky and V.B. Krapukhin
- A-8 Structural transition study of  $UC_2$  under high pressure  
J.P. Dancausse, S. Heathman, U. Benedict, L. Gerward, J. Staun-Olsen
- A-9 Electrochemical purification of intermetallic  $AnSn_3$  crystals with  $An = U, Np$  or Ce  
C. Cochaud, J. Larroque, M. Beauvy and J.C. Catonne
- A-10 Experimental facilities for synthesis and characterization of Actinide compounds  
J. Larroque, M. Beauvy, T. Charvolin, M. Eymard, C. Rouxel and A. Velez
- A-11 Magnetic and electrical properties of the orthorhombic  $U(Cu, Ni)_{2+x}Ga_{2x}$  phases  
Z. Zolnierak and E. Szulc
- A-12 Phase relations and magnetism in the ternary system Uranium-Aluminium-Silicon  
F. Weitzer, H. Noël and P. Rogl
- A-13 Crystal structure, magnetic susceptibility and electrical resistivity on  $UOS_e$  single crystals  
D. Kaczorowski, R. Pöttgen, Z. Gajek, A. Zygmunt and W. Jeitschko
- A-14  $U(Ni_{1-x}Ga_x)_5$  a novel compound with  $CaCu_5$ -type : crystal structure and magnetism  
A. Zelinsky, Y.N. Grin, K. Hiebl and P. Rogl
- A-15 Van Vleck induced magnetism in a  $J = 4$  multiplet split by tetragonal crystal field. Application to  $MT_2X_2$  compounds ( $M = An, Re$  ;  $T =$  transition metal ;  $X = Si, Ge$ )  
G. Amoretti, P. Santini, A. Blaise and R. Caciuffo
- A-16 Crystal field spectrum of  $5f^2$  configuration in  $NpO_2Cl_4^{3-}$  anion : the intermediate crystal field effect  
V.S. Mironov and S.P. Rosov
- A-17 Electronic properties of  $UCo_4B$   
H. Nakotte, L. Havela, J.P. Kuang, F.R. De Boer, K.H.J. Buschow, J.H.V.J. Brabers, T. Kuroda, K. Sugiyama and M. Date
- A-18 Magnetic behaviour of a novel compound  $U_4Sb_3$   
R. Troc
- A-19 Visible and infrared fluorescence properties of  $Am^{3+}$  doped  $ThO_2$ . Comparison with isoelectronic lanthanide ion  
P. Thouvenot and S. Hubert
- A-20 Electronic structure of  $U^{4+}$ ,  $Np^{4+}$  and  $Pu^{4+}$  doped into  $ThSiO_4$  single crystal  
J.C. Krupa and W.T. Carnall

FRIDAY, APRIL 24

FREE MORNING

12.30 - 14.00 LUNCH IN THE ALTITUDE RESTAURANT

14.30 - 16.00 SESSION V PHYSICAL PROPERTIES : INTERMETALLICS

Chairperson : W. SUSKI

- 5-1 Crystallo chemistry and electronic properties of  $NpX_3$  intermetallics (X = Ga, Ge, In and Sn)  
T. Charvolin, J. Larroque, M.N. Bouillet, P. Burlet, J.M. Fournier and J.P. Sanchez
- 5-2 Systematics of Mössbauer hyperfine fields in  $Np T_2$  (T = Fe, Co, Ni) intermetallics  
G.M. Kalvius, J. Gal, L. Asch and W. Potzel
- 5-3 Magnetic properties of stoichiometric  $NpCo_2$  from Mössbauer spectroscopy  
J.P. Sanchez, K. Tomala, J. Rebizant and J.C. Spirlet
- 5-4 Magnetoresistance and metamagnetic transitions in UPdIn  
H. Nakotte, E. Brück, F.R. De Boer, A.J. Riemersma, L. Havela and V. Sechovsky
- 5-5 On the magnetic structure of UPdSn  
H. Nakotte, L. Havela, E. Brück, F.R. De Boer, R.A. Robinson, S. Johnson, A.C. Larson, J.W. Lynn and V. Sechovsky
- 5-6 Magnetic phase diagram of UNi Ga  
P. Burlet, L. Jirman, V. Sechovsky, L. Havela, M. Divis, Y. Kergadallan, J.C. Spirlet, J. Rebizant, E. Brück, F.R. De Boer, H. Nakotte, T. Suzuki, T. Fujita and H. Maletta

16.00 - 16.30 COFFEE BREAK

16.30 - 18.00 ROUND TABLE : ACTINIDES AND SYNCHROTRON RADIATION

Chairpersons : C. Vettier - E. Dartyge - G.H. Lander

18.00 - 19.30 POSTER SESSION B

- B-1 Neptunium (VI, V) and Plutonium (VI) adsorption on hydroxides of some metals in neutral and basic solutions  
I.G. Tananayev

- B-2 Ionic forms of Plutonium (VII) in alkaline solutions  
I.G. Tananayer, S.P. Rosov and V.S. Mironov
- B-3 Forms of existence of Neptunium (VII) in acid media  
I.G. Tananayer, V.P. Shilov and N.N. Krot
- B-4 Oxidation of Np (V) hydroxide under cavitation field influence in alkaline media  
M.V. Nikonov, I.A. Charushnikova and I.G. Tananayev
- B-5 Redox potentials for the heavy elements and reactions in aqueous solutions  
G.V. Ionova, V. Pershina, E. Johnson and B. Fricke
- B-6 A study of stabilization of aqueous solutions of Uranium (III) using sodium tetraphenylborate and crown ethers  
N.B. Mikheev and S.A. Kulyukhin
- B-7 Non-magnetic mechanism of anomalously high  $^{235}\text{U}/^{238}\text{U}$  effect in reactions of photo chemical reduction of uranyl  
V.S. Mironov and S.P. Rosov
- B-8 Reprocessing cruds : some tetravalent Actinides monobutylphosphate insoluble complexes  
J. Livet and C. Musikas
- B-9 Study of new compounds of actinide hydrides  
X. Jemine, J. Goffart and J. Fuger
- B-10 Present status of a radio-chemical double beta decay study  
C. Maillard, C. Madic, A. Chevallier and J. Chevalier
- B-11 Quantum - Chemical investigation of element 105 compounds as analogs of group V element compounds  
V. Pershina, W.D. Sepp and B. Fricke
- B-12 Relativistic and crystal field effects in the properties of actinyl compounds  
G. V. Ionova
- B-13 Preparation and structure of new ternary intermetallic compound of actinides  
J. Rebizant, E. Bednarczyk, Y. Kergadallan, D. Meyer, A. Moens, M.N. Peron, C. Rijkeboer, C. Sari and J.C. Spirlet
- B-14 Magnetic properties of  $\text{Sm}_{1-x}\text{U}_x\text{Co}_5$  solid solutions  
A.V. Andreev
- B-15  $\mu\text{SR}$  studies of cubic actinide compounds :  $\text{AuCu}_3$  structure ( $\text{USn}_3$ ,  $\text{UIn}_3$ )  
S. Zwirner, J.C. Spirlet, K.H. Münch, A. Kratzer, L. Asch and G.M. Kalvius

B-16 Effect of pressure on magnetic transitions and resistance in U Ni Ga  
Y. Uwatoko, G. Oomi, V. Sechovsky, L. Havela, E. Brück and F.R. De Boer

B-17 Magnetic and transport properties of the U Au M series, M = Al, Ga, Si, Ge and Sn  
V.H. Tran and R. Troc

B-18 Structural and magnetic properties of new series of ternary compounds UMM'  
(M and M' = Al, Ga, Si, Ge)  
V.H. Tran and R. Troc

21.00 CONFERENCE DINNER

**SATURDAY, APRIL 25**

9.00 -10.30 Session VI PHYSICAL PROPERTIES. METALS AND MISCELLANEOUS COMPOUNDS

Chairperson : U. BENEDICT

6-1 Transformation in alpha-Uranium at low temperature of domains under uniaxial stress  
J.Cl. Marmeggi, G.H. Lander and T. Brückel

6-2 Calculated electronic structure of actinide metals  
M. Pénicaud

6-3 Magnetism in AnFe<sub>2</sub> laves phase compounds from ab initio calculations  
L. Severin, B. Johansson and M.S.S. Brooks

6-4 Single crystal high pressure studies on Actinide chlorides (X Cl<sub>4</sub>, X = Th, U)  
D. Meyer, J.P. Dancausse, J. Rebizant, C. Apostolidis, B. Kanellakopoulos and U. Benedict

6-5 Magnetization distribution in the U (C<sub>5</sub>H<sub>5</sub>)<sub>3</sub> Cl compound ; a polarized neutron experiment  
A. Delapalme, Ph. Raison and G.H. Lander

6-6 Electrical conduction in the mixed oxide (U<sub>1-y</sub> Pu<sub>y</sub>)O<sub>2+x</sub>  
M. Beauvy

10.30 - 11.00 COFFEE BREAK

11.00 - 12.00 CONFERENCE SUMMARY - PERSPECTIVES

12.30 LUNCH

WEDNESDAY, April 22	THURSDAY, April 23	FRIDAY, April 24	SATURDAY, April 25
<p>16.00 - 20.00 Registration</p> <p>19.00 - 20.30 Welcome Party</p> <p>21.00 Dinner</p>	<p>8.00 - 8.45 Registration</p> <p>8.45 - 9.00 Welcome address</p> <p>9.00 - 10.30 Session I Solution chemistry and reprocessing</p> <p>10.30 - 11.00 Coffee Break</p> <p>11.00 - 12.30 Session II Physical Properties : Pnictides and chalcogenides</p> <p>12.30 - 14.00 Lunch</p> <p>14.00 - 15.30 Session III Solid State chemistry and crystallography</p> <p>15.30 - 16.00 Coffee Break</p> <p>16.00 - 17.30 Session IV Physical properties : Ternary compounds</p> <p>19.30 - 21.00 Dinner</p> <p>21.00 - 22.30 Poster session A</p>	<p>9.00 - 12.30 Free time</p> <p>12.30 - 14.00 Lunch in the Altitude Restaurant</p> <p>14.30 - 16.00 Session V Physical Properties : intermetallics</p> <p>16.00 - 16.30 Coffee Break</p> <p>16.30 - 18.00 Round Table : Actinides and Synchrotron Radiation</p> <p>18.00 - 19.30 Poster session B</p> <p>21.00 Conference Dinner</p>	<p>9.00 - 10.30 Session VI Physical Properties : Metals and Miscellaneous compounds</p> <p>10.30 - 11.00 Coffee Break</p> <p>11.00 - 12.00 Conference Summary - Perspectives</p> <p>12.30 Lunch</p>

