



# 23<sup>èmes</sup> Journées des Actinides



**Schwarzwald 1993**

20 - 23 April

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### GENERAL INFORMATION

### PROGRAM

The 23<sup>ièmes</sup> Journées des Actinides was sponsored by:

### INSTITUTIONS

**Institute for Transuranium Elements**

Actinide Research  
Joint Research Centre  
Commission of the European  
Communities

### AUTHOR INDEX

**Université de Lausanne**

Département de Physique

**Hitec-Materials**

Dr. Ing. Keschtkar GmbH + Co KG  
Gesellschaft zur Herstellung neuer  
Werkstoffe  
G. Braun Straße 2-4  
D-W-7500 Karlsruhe 1

**E. Wagener GmbH**

Gewerbestraße 42  
D-W-7000 Stuttgart 80

**Organizing Committee:**

J.C. Spirlet

N. Athanasiou

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## GENERAL INFORMATION

### **Oral Communications:**

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

### **Posters:**

#### **Session 1**

The posters should be on display from Wednesday morning until 22.30 h.

#### **Session 2**

The posters should be on display from Thursday morning until 18.30 h.

### **Reminder:**

The conference fee does not include hotel extras. Beverages taken during the meals are not included in the conference fee. The conference fee covers full board from dinner on Tuesday April 20 to lunch on Friday April 23. Additional accommodation and meals are at the expense of the participants and have to be booked directly with the hotel.

TUESDAY, APRIL 20

16.00-18.00 Registration

18.00-19.00 Welcome Party

19.30 Dinner

not scheduled until the afternoon registration is completed

WEDNESDAY, APRIL 21

9.00 Conference Dinner

9.15-9.45

9.15

9.30

9.45

10.00

10.15

PROGRAM

2019-2020 Annual Report

## 23<sup>èmes</sup> Journées des Actinides

Tuesday, April 20	Wednesday, April 21	Thursday, April 22	Friday, April 23
	<p>9.00 Welcome Address</p> <p>9.30 Session 1</p> <p>10.15 Break</p> <p>10.30 Session 2 NaCl compounds</p> <p>12.30 Lunch</p> <p>14.00 Session 3 Metals</p> <p>15.15 Break</p> <p>15.30 Session 4 AnX<sub>3</sub> compounds</p> <p>16.30 Poster Session 1</p>	<p>9.00 Session 5 1:1:1 Intermetallics</p> <p>10.15 Break</p> <p>10.30 Session 6 Intermetallics</p> <p>12.30 Lunch</p> <p>14.00 Poster Session 2</p> <p>16.00 Conference Summary Perspectives</p> <p>20.00 Conference Dinner</p>	<p>9.00 Discussions on actual and future cooperations</p> <p>12.00 Lunch</p> <p>Visit of the Institute for Transuranium Elements (organised on request of the participants)</p>
<p>16.00-19.00 Registration</p> <p>18.00-19.00 Welcome Party</p> <p>19.30 Dinner</p>			

**TUESDAY, APRIL 20**

16.00-18.00 Registration

18.00-19.00 Welcome Party

19.30 Dinner

**WEDNESDAY, APRIL 21**

9.00 Welcome Address J. van Geel  
Director of the Institute for Transuranium  
Elements

9.15-10.15 **SESSION 1**  
Chairperson: *J. Fuger*

9.15 O1.1 **Chemical Behaviour of Np (V) in Concentrated Salt Solutions**  
*V. Neck, J.I. Kim and B. Kanellakopoulos*

9.30 O1.2 **Does the Gas Phase Reactivity of Actinide Ions towards Alkanes, Alkenes and Arenes depend on f Electrons?**  
*A. Pires de Matos and J. Marçalo*

9.45 O1.3 **Reactor Core Degradation - a Study of TMI-2 Samples at ITU Karlsruhe**  
*P.D.W. Bottomley*

10.00 O1.4 **Electronic Structure and Properties of the Transactinide Elements and their Compounds**  
*V. Pershina, B. Fricke*

10.15 Break

- 10.30 - 12.30    **SESSION 2: NaCl Compounds**  
 Chairperson: *G.M. Kalvius*
- 10.30    **O2.1    Theory of Pressure Effects and the Correlated-Electron Behavior of UTe**  
*B.R. Cooper and Q.G. Sheng*
- 10.45    **O2.2    Metallurgical Problems Met in Magnetic Dilution of Uranium Monopnictides and Monochalcogenides**  
*O. Vogt and K. Mattenberger*
- 11.00    **O2.3    Recent Results of High-Pressure Resistance Measurements of Actinide Compounds**  
*P. Link, U. Benedict, J. Wittig, H. Wühl, J. Rebizant and J.C. Spirlet*
- 11.15    **O2.4    Transport Properties of NpP. Comparison with the Other Np-Monopnictides**  
*M. Amanowicz, J. Rebizant, J.C. Spirlet and O. Vogt*
- 11.30    **O2.5    Magnetic Properties of NpTe**  
*F. Bourdarot, P. Burlet, M.N. Bouillet, J.P. Sanchez, J. Rossat-Mignod, J. Rebizant, J.C. Spirlet and O. Vogt*
- 11.45    **O2.6    X-Ray Resonant Magnetic Scattering from NpAs: – observation of Critical Effects near  $T_N$**   
*S. Langridge, W.G. Stirling, G.H. Lander, J. Rebizant, J.C. Spirlet, D. Gibbs and O. Vogt*
- 12.00    **O2.7    Observation of a Phase Transition within the Ordered State of USb**  
*G.H. Lander*
- 12.15    **O2.8    Density Functional Theory of Optical and Magneto-Optical Transitions in Actinides**  
*M.S.S. Brooks and T. Gasche*
- 12.30-14.00    **Lunch**

- 14.00-15.15     **SESSION 3: Metals**  
                    Chairperson: *G.H. Lander*
- 14.00     **O3.1     Comparison of X-Ray Synchrotron and Neutron Scattering from an Alpha-Uranium Crystal at Low Temperature under Pressure**  
*J.-C. Marmeggi, G.H. Lander, P.M. Ghering and D. Gibbs*
- 14.15     **O3.2     The High Pressure Phase of Plutonium**  
*S. Dabos-Seignon, J.P. Dancausse, E. Gering, S. Heathman, and U. Benedict*
- 14.30     **O3.3     Comparison of Adsorption Studies on Pu and U Metals by Photoemission Spectroscopy**  
*T. Almeida, L.E. Cox, J.W. Ward and J.R. Naegele*
- 14.45     **O3.4     The Electronic Structure of Pu-Metal: an X-Ray and High Resolution UV Photoemission Study**  
*J.R. Naegele, L.E. Cox and J.W. Ward*
- 15.15             **Break**
- 15.30-16.30     **SESSION 4: AnX<sub>3</sub> compounds**  
                    Chairperson: *J.M. Fournier*
- 15.30     **O4.1     Electronic Structure of Uranium Intermetallics Calculated by Tight Binding and LDA Method**  
*M. Diviš*
- 15.45     **O4.2     Magnetic and Electronic Properties of Cubic NpX<sub>3</sub> Compounds**  
*T. Charvolin, M.N. Bouillet, A. Blaise, P. Burllet, J.M. Fournier, J. Larroque, J. Rossat-Mignod and J.P. Sanchez*
- 16.00     **O4.3     Spin Density in NpGe<sub>3</sub>**  
*T. Charvolin, A. Delapalme, J. Larroque, E. Ressouche and J. Schweizer*

16.15 O4.4 **NpX<sub>3</sub> Compounds under high Pressure**  
*S. Zwirner, W. Potzel, J.C. Spirlet, J. Rebizant, J. Gal and G.M. Kalvius*

16.30-18.30 **POSTER SESSION 1**

**P1.1 Synthesis and Properties of some Neptunium (V) Carboxylates**

*I.A. Charushnikova, M.S. Grigoriev and N.N. Krot*

**P1.2 Influence of Coordinated Water on the Structure and the Properties of Pentavalent Neptunium Compounds with Tetrahedral Anions of the VI Group Elements**

*N.A. Budantseva and A.M. Fedosseev*

**P1.3 "Extraction Chemistry of Actinide Cations by N,N,N',N'-Tetraalkyl-2 Alkyl Propane-1,3 Diamides"**

*L. Nigond, C. Musikas and C. Cuillerdier*

**P1.4 "Conformational Analysis of Monoamides Complexed with Plutonium Nitrate in Organic Phase"**

*C. Berthon and C. Chachaty*

**P1.5 Comparative Synergistic (Technetium-Actinide) Extraction Chemistry by Tributylphosphate and some Amide Extractants**

*N. Condamines, C. Musikas and L. Delmau*

**P1.6 Lower Oxidation States of Protactinium**

*S.A. Kulyukhin, N.B. Mikheev, A.N. Kamenskaya and I.A. Rumer*

**P1.7 Synthesis and Characterization of Quasicrystalline Materials**

*N. Athanasiou, C. Politis, J.C. Spirlet, I. Ray, C. Sari, A. Moens, M. Lebrun, P. Lefebvre, H. Thiele, W. Huber, C. Trisoglio and F. Martinez*

- P1.8 Mössbauer Studies of Glassified Neptunium**  
*J. Jove, M. Pages, I. Halevy, W. Potzel, G.M. Kalvius and J. Gal*
- P1.9 Magnetic Properties of  $U_2T_2X$  Compounds**  
*L. Havela, V. Sechovský, H. Nakotte, K. Prokeš, F.R. de Boer,  
 J.C. Spirlet, Y. Kergadallan and A. Seret*
- P1.10 Preparation and Structural Study of New Actinide Ternary Intermetallic Compounds  $An_2T_2X$  ( $An = U, Np$   $X = In, Sn$   $T = Co, Ir, Ni, Pd, Pt, Rh$ )**  
*J.M. Winand, Y. Kergadallan, M.N. Peron, D. Meyer, J. Rebizant and J.C. Spirlet*
- P1.11  $UTh_2Si_2$  and  $UTh_2Ge_2$  as an Example of Actinide-Actinide Ternaries**  
*Z. Zolnierek, A. Szlyk, A. Zaleski and D. Badurski*
- P1.12 Single Crystal Preparation for Physical Measurements on Neptunium Compounds  $NpGa_3$ ,  $NpGe_3$ ,  $NpIn_3$  and  $NpSn_3$**   
*J. Larroque, T. Charvolin, M. Eymard and C. Rouxel*
- P1.13 Magnetic Behaviour of  $NpPt_3$**   
*M.N. Bouillet, E. Colineau, A. Blaise, P. Burlet, C. Jeandey, J.L. Oddou, J.P. Sanchez, J. Rossat-Mignod, J.C. Spirlet and J. Rebizant*
- P1.14 Resistivity and Superconductivity of Americium Metal under Pressure up to 25 GPa**  
*P. Link, D. Braithwaite, U. Benedict, J. Wittig and R.G. Haire*

19.30

Dinner

THURSDAY, APRIL 22

9.00-10.15      **SESSION 5: 1:1:1 Intermetallics**

Chairperson: *W. Suski*

9.00      **O5.1      Relations between the Localisation of the 5f Electrons and the Structure in AnTAl Compounds (T Element from the VIIIth Group)**

*Y. Kergadallan, E. Bednarczyk, A. Moens, J. Rebizant, C. Rijkeboer and J.C. Spirlet*

9.15      **O5.2      Magnetic and Mössbauer Effect Study of the U (Fe<sub>1-x</sub>M<sub>x</sub>)Al (M = Ni, Co)**

*R. Troć, V.H. Tran, V.G. Vagisov and H. Drulis*

9.30      **O5.3      Magnetic Phases in UNiGe**

*V. Sechovský, L. Havela, K. Prokeš, H. Nakotte, E. Brück, F.R. de Boer, P. Svoboda and H. Maletta*

9.45      **O5.4      Magnetic Excitations and their Influence on Thermodynamic and Transport Properties**

*L. Havela, V. Sechovský, H. Nakotte, E. Brück and K. Prokeš*

10.00

10.15      **Break**

10.30-12.30      **SESSION 6: Intermetallics and Other Compounds**

Chairperson: *L. Havela*

10.30      **O6.1      Neutron Diffraction and AC-Susceptibility Studies of the Magnetic Phase Diagram of the U (Ni<sub>1-x</sub>Cu<sub>x</sub>)<sub>2</sub>Si<sub>2</sub> System**

*M. Kuznietz, G. André, F. Bourée, H. Pinto, H. Ettetdgui and M. Melamud*

- 10.45    **O6.2**    **Structure, Magnetic Properties and  $^{57}\text{Fe}$  Mössbauer Effect in the  $\text{UFe}_{10-x}\text{Ni}_x\text{Si}_2$  System**  
*W. Suski, K. Wochowski, F.G. Vagizov, H. Drulis and T. Mydlarz*
- 11.00    **O6.3**    **Magnetic Properties of  $\text{U}_5\text{Sb}_4$**   
*J.A. Paixão, J. Rebizant, A. Blaise, A. Delapalme, J.P. Sanchez, H. Nakotte, P. Burlet, M. Bonnet and G.H. Lander*
- 11.15    **O6.4**    **Magnetic Properties of the Fluorite Double Salt  $\text{NpOH}\cdot\text{NpH}_2$ : Mössbauer and Magnetization Studies**  
*I. Halevy, J. Gal, G. Kimmel, D. Brami, S. Fredo, D. Regev, W. Potzel, M.G. Kalvius and I. Nowik*
- 11.30    **O6.5**    **Electronic Structure of f Elements imbedded in Fluoride Matrices using Synchrotron Radiation**  
*J.-C. Krupa, I. Gérard and P. Martin*
- 11.45    **O6.6**    **Magnetic Studies of the  $\text{U}_2\text{T}_2\text{M}$  Ternaries**  
*Z. Zolnierek and A. Zaleski*
- 12.30-14.00    Lunch
- 14.00-16.00    **POSTER SESSION 2**
- P2.1**    **Crystallographic and Magnetic Structures of  $\text{UPdSn}$  and  $\text{UAuSn}$**   
*H. Nakotte, E. Brück, F.R. de Boer, V. Sechovský, L. Havela, R.A. Robinson, A.C. Lawson, V. Nunez, J.W. Lynn and K.H.J. Buschow*
- P2.2**    **Electrical Resistivity and Magnetoresistance in  $\text{UNiGe}$**   
*K. Prokeš, H. Nakotte, E. Brück, F.R. de Boer, V. Sechovský and L. Havela*
- P2.3**    **Structural and Magnetic Studies of  $\text{UXY}$  ( $\text{X} = \text{P, Sb}; \text{Y} = \text{S, Se}$ ) Single Crystals**  
*D. Kaczorowski, H. Noël, M. Potel and A. Zygmunt*

- P2.4 Magnetism and Hybridization in UTIn Compounds (T = Rh, Pt, Pd)**  
*V. Sechovský, L. Havela, H. Nakotte, E. Brück, F.R. de Boer, A.V. Andreev and K.H.J. Buschow*
- P2.5 Complex Behaviour of the Magnetism of the NpTAl Compounds with ZrNiAl Structure (T Element from the VIIIth Group)**  
*Y. Kergadallan, E. Bednarczyk, A. Moens, J. Rebizant, C. Rijkeboer, J.C. Spirlet, S. Zwirner, C. Jeandey, J.L. Oddou and J.P. Sanchez*
- P2.6 Growth and Characterization of UFe<sub>9.2</sub>Si<sub>1.8</sub> and UFe<sub>6</sub>Ge<sub>6</sub> Single Crystals**  
*A.P. Gonçalves, J.C. Waerenborgh, R.T. Henriques, G. Bonfait, M. Almeida and J.C. Spirlet*
- P2.7 Magnetism and Superconductivity in Doped UPd<sub>2</sub>Al<sub>3</sub> and UNi<sub>2</sub>Al<sub>3</sub>**  
*C. Geibel, F. Jährling, C. Schank, A. Grauel, T. Lühmann, R. Helfrich, P.H.P. Reinders and F. Steglich*
- P2.8 Crystal Structure and Magnetism of Novel Compounds U<sub>3</sub>(M',M'')<sub>5</sub> M' = Al, Ga, M'' = Si, Ge**  
*F. Weitzer, M. Potel, H. Noël and P. Rogl*
- P2.9 Evidence of a Spin-Glass Behaviour of UCu<sub>x</sub>Ge<sub>y</sub> System, (0.80 ≤ x, y ≤ 1.00)**  
*V.H. Tran, A. Zalewski and R. Troć*
- P2.10 Spin-Glass Behaviour in U<sub>2</sub>TSi<sub>3</sub> (T = Fe, Co, Ni, Cu) Intermetallics**  
*D. Kaczorowski, H. Noël and R. Pottgen*
- P2.11 Crystal Chemistry and Magnetic Properties of New Ternary Uranium Niobium Silicide and Germanide**  
*T. Le Bihan, H. Noël and P. Rogl*

**P2.12 Mechanisms of 90° and 180° Superexchange Interactions between 5f<sup>1</sup>-Ions and Magnetic Behavior of Some U(V) and Np(VI) Oxides with Pseudo-Cubic Structures**

*V.S. Mironov*

**P2.13 Electronic Properties of UCu<sub>x</sub>Al<sub>5-x</sub>**

*H. Nakotte, E. Brück, F.R. de Boer, K.H.J. Buschow,*

*A.V. Andreev, R.A. Robinson, A. Purwanto and J.W. Lynn*

16.00-18.00 **Conclusions and Perspective**

Chairperson: *G.M. Kalvius*

- Chemistry: A. Pires de Matos

B. Cooper

V. Sechovsky

J.M. Fournier

ABSTRACTS

20.00 **Conference Dinner**