30ièmes Journées des Actinides

4.-6. May 2000, Dresden, Germany

2.-3. May School on Physics and Chemistry of Actinides

Colineau

30^{ièmes} Journées des Actinides

May 4–6, 2000, Dresden, Germany

Dear participant of the 30^{ièmes} Journées des Actinides,

we welcome you to Dresden, where the this years Journées take place in Hotel Mercure Newa. The scientific programme, time schedule, and abstracts you can find in this booklet. Please note the following additional information concerning the 30^{ièmes} Journées des Actinides:

Oral presentations. The duration of an oral presentation is 25 minutes, including approximately 5 minutes for discussion. We kindly ask you to stay within your allocated time, because of the tight time schedule!

Posters. Posters will be on display for the entire duration of the conference. They can be attached on Thursday May 4, and should be removed by Saturday afternoon, May 6.

Excursion. The excursion will take place on Friday, May 5. South-west of Dresden is the mining region 'Erzgebirge' which is rich of mineral ores, including uranium ore. During the cold war most of the Soviet uranium was mined here. We will visit a uranium mine near Königstein, where you can see how previously the mining took place, what is presently being done to prevent environmental pollution, and how the contaminated waste is handled. You have the unique opportunity to visit the interior of the mine, which is a chance one might not have again in a lifetime! To join this part of the excursion there is a list at the conference office, where one can enlist. Be aware that you have to change clothes, since protective clothing has to be worn in the mine! There will also be a bus tour with explanation on the mining area, in case you don't want to go 'down below' the pit. G. Bernhard of Forschungszentrum Rossendorf will explain about the mining activities in East-Germany and the radioecological aspects on Thursday, May 4. Part of the excursion is also a visit to Festung Königstein, the majestic stronghold of the former kings of Saxony.

Sightseeing tours. For participation in the sightseeing tours, as well as the purchase of opera tickets, you can enlist and pay with Mrs. Schwackhausen at the conference office, who takes care of the organization of the cultural activities.

Conference dinner. The conference dinner will be held on Saturday, May 6, in the Taschenberg Palace, a reconstructed baroque building in the center of Dresden.

We wish you a pleasant stay in Dresden and a scientifically successful meeting.

The Organizers

The School on the Physics and Chemistry of the Actinides
and the $30^{ièmes}$ Journées des Actinides are sponsored by:

- Sonderforschungsbereich 463 der Deutschen Forschungsgemeinschaft
- Max-Planck Institut für Physik komplexer Systeme, Dresden
- Institut für Festkörper- und Werkstofforschung Dresden e.V. (IFW)

Programme Committee

G. Bernhard	FZ Rossendorf
G. H. Lander	ITU Karlsruhe
P. M. Oppeneer	IFW Dresden
M. Richter	IFW Dresden

Organizing Committee

Manuel Richter and Peter M. Oppeneer
Institut für Festkörper- und Werkstofforschung Dresden e.V.
P.O. Box 27 00 16, D-01171 Dresden, Germany

Local Organization

Igor Chaplygin
Ingo Opahle
Peter Oppeneer
Manuel Richter
Lutz Steinbeck

Conference Office

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30^{ièmes} Journées des Actinides

May 4–6, 2000, Dresden, Germany

SCIENTIFIC PROGRAMME

Wednesday, May 3

14.00 – 21.00 Registration; Dinner à la carte available in the hotel restaurant

Thursday, May 4

9.00 Opening address

Chairman: Manuel Almeida

9.05 T 01 **A. Hiess**, S. Coad, D. McMorrow, G. Lander, G. Aeppli, and Z. Fisk
Magnetic correlations in UBe_{13}

9.30 T 02 W. Kopmann, F. J. Litterst, W. Wagner, M. Hillberg, H. Walf, H.-H. Klauß, **G. M. Kalvius**, F. J. Burghart, E. Schreier, G. H. Lander, and J. Rebizant
Magnetic order in $NpCo_2$ detected by μSR

9.55 T 03 **Y. Miyako**, H. Amitsuka, N. Metoki, M. Sato, and K. Marumoto
Non-magnetic quadrupolar order in URu_2Si_2

10.20 T 04 E. Lidström, D. Mannix, N. Bernhoeft, A. Hiess, E. Colineau, F. Wastin, J. Rebizant, and **G. H. Lander**
Resonant x-ray magnetic scattering from (U,Np)Ru_2Si_2

10.45 Coffee break

Chairman: Alexander Andreev

11.00 T 05 **R. Troć** and V. H. Tran
Development of ferromagnetism by dilution of U sublattice in UCoAl

11.25 T 06 **A. V. Kolomiets**, L. Havela, R. Dremov, Z. Arnold, J. Šebek, and A. V. Andreev
The effect of high-pressure on the non-Fermi liquid state in UCoAl

11.50 T 07 D. Mannix, S. Coad, G. H. Lander, J. Rebizant, P. J. Brown, **J. A. Paixão**, S. Langridge, and Y. Yamaguchi
Neutron- and synchroton-diffraction study of UPtGe

12.15 T 08 **L. Sandratskii**
Magnetic structure of UPtGe

12.40 T 09 **M. S. S. Brooks**
Exchange enhanced spin-orbit coupling in narrow bands

13.05 Lunch

Chairman: Vladimir Sechovský

14.00 T 10 **A. Bombardi**, F. Bourdarot, P. Burlet, J. P. Sanchez, P. Vulliet, E. Colineau, J. Rebizant, F. Wastin, G. H. Lander, O. Vogt, and K. Mattenberger
Magnetic structures in NpAs-NpSe system

14.25 T 11 **D. Kolberg**, F. Wastin, J. Rebizant, and J. Schoenes
Magnetic properties of $Pu_xU_{1-x}Sb$ single crystals

14.50 T 12 **P. S. Normile**, D. Mannix, P. Burlet, F. Bourdarot, B. Lebech, G. H. Lander, W. G. Stirling, F. Wastin, and J. Rebizant
Neutron and X-ray scattering studies of magnetism in $Pu_xU_{1-x}Sb$

15.15 T 13 **P. Wachter** and J. Rebizant
The electronic and magnetic properties of the light actinide tellurides up to AmTe

15.30 T 14 **P. Wachter**, M. Filzmoser, and J. Rebizant
The elastic properties of the light actinide tellurides up to AmTe

15.45 Coffee break

Chairman: Michel Genet

16.05 T 15 **F. Wastin**, T. Gouder, E. Colineau, J. Rebizant, G. H. Lander, and R. Schenkel
The "Actinide User Laboratory" at ITU-Karlsruhe: Perspectives

16.30 T 16 **S. Hübener**, S. Taut, A. Vahle, B. Eichler, D. T. Jost, A. Tuerler, and N. Trautmann
Thermochromatographic adsorption studies of berkelium

16.55 T 17 **S. Taut**, S. Hübener, A. Vahle, B. Eichler, D. T. Jost, A. Türler, and K. Gregorich
Thermochromatography of fermium, mendelevium, and nobelium

17.20 T 18 **G. Bernhard**
Uranium mining and milling in Eastern Germany – Radioecological aspects

17.45 Dinner

19.00 Posters

Friday, May 5

8.00 Excursion; First bus leaves for uranium mine & Festung Königstein

8.30 Excursion; Second bus leaves for uranium mine & Festung Königstein

15.40 Coffee break

16.00 Posters

17.40 Dinner

Chairman: Wojciech Suski

19.00 F 01 **D. Kaczorowski**, R. Troć, T. Komatsubara, C. Sulkowski, H. Misiorek, J. Stępień-Damm, T. Kagayama, F. Honda, G. Oomi, H. Borrmann, and Y. Grin
Single crystal study on a dense Kondo antiferromagnet UCu_5In

19.25 F 02 E. Caspi, **M. Melamud**, H. Shaked, A. I. Shames, and S. Goren
^{59}Co NMR Study of $(U_{1-x}Nd_x)Co_2Ge_2$ ($x = 0, 0.25, 1$)

19.50 F 03 **M. Diviš**, M. Richter, L. Steinbeck, and P. Mohn
Density functional prediction of a magnetic ground state of UFeSi

20.15 F 04 Y. G. Pashkevich and **A. V. Yeremenko**
Determination of multi-k structures by infrared spectroscopy

20.40 F 05 **S. L. Molodtsov**, S. Halilov, V. D. P. Servedio, M. Richter, and C. Laubschat
Cooper minimum and Fano resonance effects at the 5d → 5f treshhold in U metal

Saturday, May 6

Chairman: Robert Troć

8.40 S 01 **D. Mannix**, L. Paolasini, N. Bernhoeft, G. H. Lander, A. Stunault, C. Vettier, and F. de Bergevin
X-ray resonant scattering at the K edge of actinide compound anions

9.05 S 02 T. Gouder, **L. Havela**, M. Diviš, P. M. Oppeneer, and M. Richter
Electronic structure of UGa_x films

9.30 S 03 **S. Demuynck**, L. Sandratskii, S. Cottenier, and M. Rots
Magnetic ordering in UX_3 (X = In, Pb, Ga)-compounds determined by symmetry and magnetic hyperfine field measurements

9.55 S 04 **T. Cichorek**, Z. Henkie, P. Gegenwart, M. Lang, A. Wojakowski, M. Dischner, and F. Steglich
A non-magnetic Kondo effect in the UAsSe ferromagnet? A comparative transport and thermodynamic study with ThAsSe

10.20 S 05 **A. J. Arko**, J. J. Joyce, L. Morales, J. Sarrao, A. Wojakowski, T. Cichorek, and P. M. Oppeneer
The 5f band structure in strongly correlated uranium compounds

10.45 Coffee break

Chairman: Jean-Claude Krupa

11.00 S 06 **T. Reich**, G. Geipel, H. Funke, C. Hennig, A. Roßberg, and G. Bernhard
XANES and EXAFS measurements of Pu(III) and Pu(VI) hydrates

11.25 S 07 **G.R. Choppin**
Distribution and movement of environmental plutonium

11.50 S 08 **M. Beauvy** and C. Duriez
Chemical bonding in cubic actinide oxides AnO_{2+x} (An = U, Np, Pu) and chemical properties

12.15 S 09 N. E. Cherniavskaya, S. V. Chizhevskaya, **A. V. Ochkin**, and S. V. Stefanovsky
Perovskite ceramics for immobilization of HLW actinide fraction

12.40 S 10 L. D. Danilin, **S. P. Vesnovski**, V. D. Kartushin, N. V. Pilipenko, and L. D. Abramycheva
Investigation of the process of thermal decomposition of uranium β-diketonates and transuranium elements in vapor phase aimed at films production

13.05 Lunch

Chairman: Michael Brooks

14.00 S 11 **M. Dormeval** and N. Baclet
On the behaviour of Ce and Ga in Pu-Ce and Pu-Ce-Ga alloys stabilized in the δ-phase

14.25 S 12 **S. I. Gorbunov** and A. G. Seleznev
Plutonium-238 metal properties

14.50 S 13 **G. Kotliar**
Electronic structure of δ plutonium: A first principles dynamical mean field approach

15.15 S 14 **M. Pénicaud**
Calculated equilibrium properties, electronic structures and structural stabilities of Th, Pa, U, Np and Pu

15.40 S 15 **B. R. Cooper**, Y.-L. Lin, and A. Setty
Between periodic 5f localization, spatially disorderd 5f localization and 5f delocalization in uranium and plutonium systems

16.05 Coffee break

Chairman: Henri Noël

16.20 S 16 **P. Rogl**, G. André, F. Boureé, B. Chevalier, H. Michor, G. Hilscher, E. Bauer, and J. Etourneau
Two independent magnetic uranium sublattices in $U_3Pd_{20}Si_6$?

16.45 S 17 **A. P. Gonçalves**, P. Estrela, E. B. Lopes, M. Godinho, and M. Almeida
Preparation and characterization of UZn_{12} single crystals

17.10 S 18 **S. Sério**, J. C. Waerenborgh, A. P. Gonçalves, M. Almeida, D. Fruchart, and M. Godinho
Preparation and study of $UFe_{12-x}Al_xH_y$ ($x = 4.5$ and 4.7) compounds

17.35 S 19 **T. Gouder**, F. Miserque, L. Black, L. Havela, F. Wastin, and J. Rebizant
Preparation of thin films of actinides by sputter deposition

18.00 Conference summary

19.00 Leave for conference dinner

20.00 Conference dinner in Taschenberg Palace / Kempinsky Hotel

POSTERS

P01 **K. Liftin**, S. Heathman, K. Mattenberger, and J. Schoenes
High pressure studies on $U_xLa_{1-x}S$

P02 V. Ichas, **J.-C. Griveau**, J. Rebizant, and J. C. Spirlet
Pressure effects on the resistivity of plutonium monochalcogenides

P03 K. Knöpfle, **L. M. Sandratskii**, and J. Kübler
Noncollinear magnetic order in U_3Bi_4

P04 **M. Diviš**, V. Nekvasil, and J. Kuriplach
Electronic structure of An_2CuO_4 (An = Pu, Am, Cm) cuprates

P05 R. Troć, **A. Pikul**, and D. Kaczorowski
Effects of U doping in $ThCu_6$

P06 V. Zaremba, **J. Stępień-Damm**, V. Hlukhyy, V. H. Tran, R. Troć, and D. Kaczorowski
Crystal structure of $ThCu_5X$, (X = In, Sn)

P07 **V. H. Tran** and G. André
Magnetic orderings in the Kondo U_2PdGa_3 and U_2PtGa_3 compounds

P08 **P. Svoboda**, P. Javorský, V. Sechovský, and A. A. Menovsky
Magnetic phase diagram of UNi_2Si_2 in high magnetic fields

P09 **N. Oeschler**, F. Kromer, P. Hinze, M. Lang, F. Steglich, J. S. Kim, and G. R. Stewart
Thermal-expansion studies of $U_{1-x}Th_xBe_{13}$: Implications for the T–x phase diagram

P10 **W. Suski**, K. Wochowski, and D. Badurski
Magnetic and electrical properties of the $UCu_4Al_{8-x}Ga_x$ system

P11 **A. J. Arko**, J. J. Joyce, L. Morales, and J. Lashley
The electronic structure of α- and δ-Pu from photoelectron spectroscopy

P12 **A. M. Strydom**
Magnetoresistivity of $U_2Rh_3Ga_9$ and $Th_2Rh_3Ga_9$

P13 R. Troć, **P. Rogl**, V. H. Tran, and A. Czopnik
Magnetotransport and heat capacity in ternary compounds $U_3M_2M'_3$ (M = Al, Ga; M' = Si, Ge)

P14 S. Mat'aš, M. Mihalik, **M. Zentková**, O. Mikulina, Z. Arnold, J. Šebek, R. Dremov, and P. Rogl
Magnetic and electronic properties of $U_3Al_2Si_3$ single crystal

P15 **A. Kimura**, D. Li, and Y. Shiokawa
Magnetic properties of single crystalline U_2NiSi_3

P16 **Y. Homma**, Jauhari-Awal, and Y. Shiokawa
Magnetic critical behaviors of $U_2Pd_{1-x}Si_{3+x}$ and $U_2Pd_{1-x}Ru_xSi_3$ spin glasses

P17 **J. Kuneš**, M. Diviš, P. Novák, and P. M. Oppeneer
Magnetic and magneto-optical properties of URhAl from first-principles calculations

P18 **M. Kučera**, A. Kolomiets, J. Kuneš, J.-P. Kappler, and A. Rogalev
X-ray magnetic circular dichroism studies of 5f magnetism in metamagnetic UCoAl

P19 **P. Javorský**, J. Schweizer, E. Berna-Lelievre, A. V. Andreev, V. Sechovský, and F. Bourdarot
Magnetization densities in UCoAl

P20 **A. V. Andreev**, V. Sechovský, M. Kosaka, Y. Uwatoko, Y. Homma, and Y. Shiokawa
Interplay between non-magnetic dilution and pressure effects in magnetism of UCoAl

P21 **A. V. Kolomiets**, M. I. Bartashevich, A. V. Andreev, L. Havela, T. Goto, and W. Iwasieczko
High-field magnetization of UNiAl hydrides

P22 **A. V. Andreev**, J. Kamarad, V. Sechovský, T. Khmelevska, F. Honda, G. Oomi, and Y. Shiokawa
Magnetoelasticity of UPtAl

P23 L. C. J. Pereira, I. Catarino, G. Bonfait, J. C. Waerenborgh, M. Godinho, and **M. Almeida**
Heavy fermion properties of U_2Pt_2In: Effect of Th substitution for U

P24 Z. Henkie, A. Wojakowski, R. Wawryk, and **Z. Kletowski**
Thermoelectric power anisotropy for some PbFCl phases

P25 **Z. Ropka**, R. Michalski, and R. J. Radwanski
Fine electronic structure and magnetism of UGa_2 and $NpGa_2$ compounds

P26 **R. J. Radwanski**, Z. Ropka, and R. Michalski
Magnetism and fine electronic structure of UPd_2Al_3 and $NpPd_2Al_3$ compounds

P27 A. Perricone and **H. Noël**
Contribution to the characterization of the uranium-nickel alloys

P28 Z. Henkie, **A. Wojakowski**, A. Pietraszko, L. Kępiński, and T. Cichorek
Single crystal growth and crystallochemical characterisation of some thorium and uranium arsenochalcogenides

P29 **M. Zentková**, Z. Mitroóvá, and J. Kováč
Magnetic properties of prussian blue analogues base on uranium and transition metal ion

P30 B. Fultz, U. Kriplani, and **I. Halevy**
Kinematical X-ray diffraction with a ^{57}Fe Mössbauer powder diffractometer as function of pressure

P31 **E. Colineau**, J. Rebizant, E. Bednarczyk, P. Boulet, and F. Wastin
Mössbauer investigations of $U_{1-x}Np_xO_2$

P32 **P. Boulet**, J. Rebizant, E. Bednarczyk, C. Fuchs, A. D. Stalios, and F. Wastin
Single crystals of actinides mixed dioxides: Preparation and characterisation

P33 **N. Sato** and T. Fujino
Formation of UOS thin film by the sulfurization of laser ablated UO_2 film using H_2S and its electrical properties

P34 **T. Fujino** and N. Sato
Configurational entropy calculation for quaternary solid solution $A_y^{2+}B_z^{3+}U_{1-y-z}O_{2+x}$ and its application to the oxygen potential of $Mg_yCd_{0.142}U_{0.858-y}O_{2+x}$ ($x \lesssim 0$)

P35 **K. Hasegawa** and Y. Shiokawa
Electrolysis in the outside of aqueous potential windows and its application to group separation of actinide and lanthanide

P36 **Y. Shiokawa**
The kinetics of neptunium redox reactions at some carbon electrodes for the redox flow battery

P37 **K. Schmeide**, S. Pompe, M. Bubner, K. H. Heise, and G. Bernhard
Uranium (VI) and humic acid sorption onto phyllite and ferrihydrite

P38 **R. K. Rastsvetaeva** and A. V. Barinova
Crystal structures of novel complex uranium (VI) molybdate and neptunium (VI) sulphate

P39 **S. Pompe**, K. Schmeide, M. Bubner, G. Geipel, K. H. Heise, G. R. Choppin, and G. Bernhard
Influence of phenolic OH groups on humic acid complexation with uranium (VI)

P40 **G. Geipel**, V. Brendler, and G. Bernhard
Complex formation of uranium (VI) with phosphate in acidic media

P41 **H. Moll**, T. Reich, and Z. Szabó
The hydrolysis of dioxouranium (VI) investigated using EXAFS and ^{17}O-NMR

P42 G. B. Andreev, V. N. Khrustalev, M. Yu. Antipin, **A. M. Fedosseev**, N. A. Budantseva, J.-C. Krupa, and C. Madic
Complexes of Np (V) with N-donor ligands. Synthesis, crystal structure and properties of $(NpO_2)_2[2,6\text{-}(OOC)_2C_5H_3N]\cdot 5H_2O$ and $Li_3NpO_2[2,6\text{-}(OOC)_2C_5H_3N]_2\cdot 6H_2O$ compounds

P43 **M. Akabori**, K. Tanako, A. Itoh, T. Ogawa, M. Numata, and M. Shindo
Fabrication of americium nitride targets/fuels for MA transmutation

P44 **S. V. Stefanovsky**, A. V. Ochkin, and S. V. Yudintsev
Phase compositions and partitioning of uranium and cerium in polyphase ceramics for actinide waste immobilization