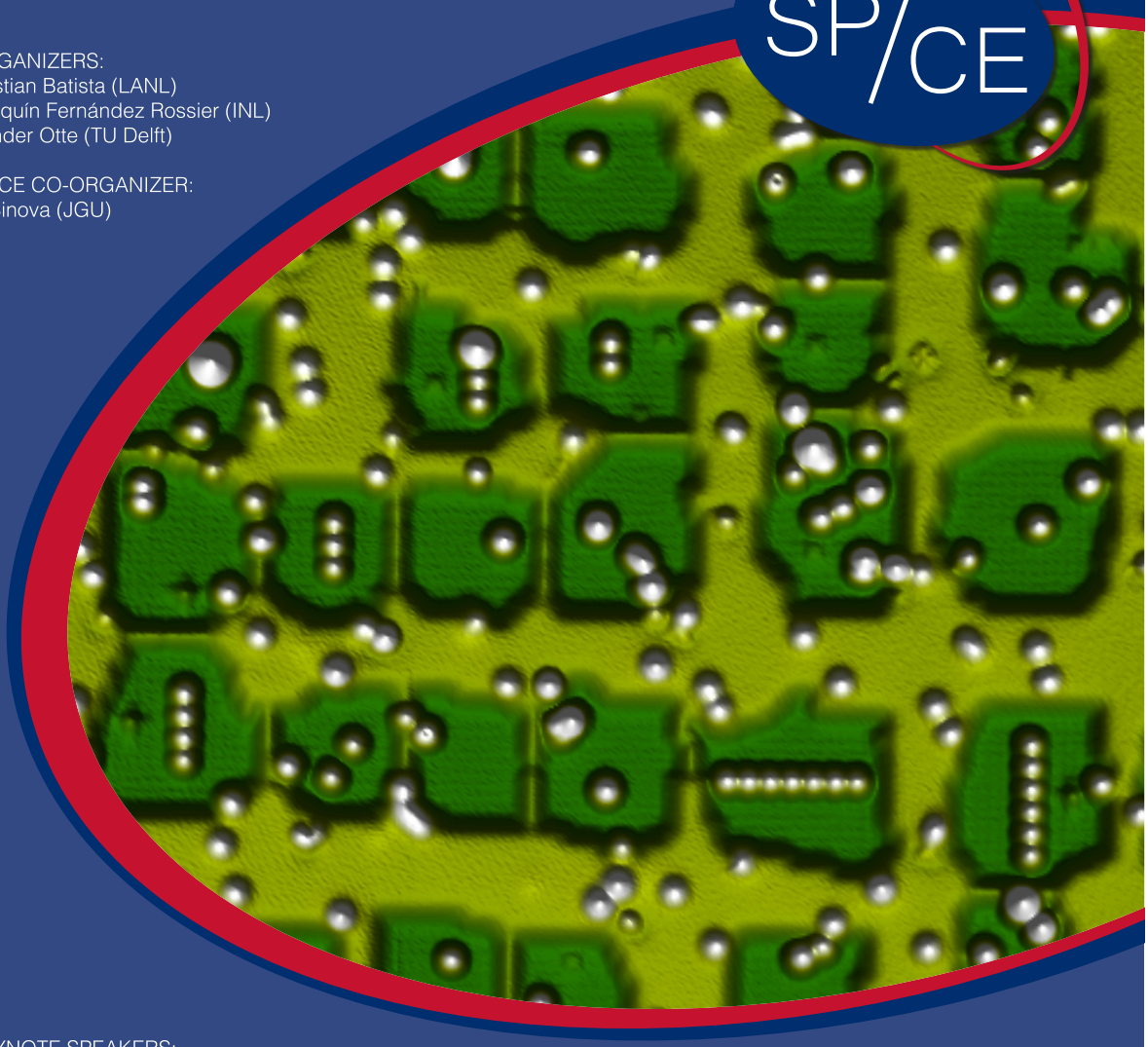
MAGNETIC ADATOMS AS BUILDING BLOCKS FOR QUANTUM MAGNETISM

Workshop August 17th - 20th 2015
Schloss Waldthausen, Mainz, Germany

SPICE



ORGANIZERS:
Cristian Batista (LANL)
Joaquín Fernández Rossier (INL)
Sander Otte (TU Delft)

SPICE CO-ORGANIZER:
J. Sinova (JGU)

KEYNOTE SPEAKERS:

Ian Affleck (University of British Columbia)
Thierry Giarmarchi (U. Geneva)
Leonid Glazman (U. Yale)
Andreas Heinrich (IBM Almaden)
Allan Macdonald (UT Austin)
Frédéric Mila (EPFL)
Roland Wiesendanger (University of Hamburg)

The Spin Phenomena Interdisciplinary Center aims to bring together scientists from diverse disciplines and of varying seniority in the broad area of spin related research. Its goal is to break down scientific barriers and foster emergent areas of research that combine the strengths of different fields.

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INL INTERNATIONAL IBERIAN NANOTECHNOLOGY LABORATORY

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SPICE SPIN PHENOMENA

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SPIN PHENOMENA
INTERDISCIPLINARY CENTER

Magnetic Adatoms as Building Blocks for Quantum Magnetism
17th - 20th August 2015

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Program

Monday 17 August

MORNING SESSION

09:00-09:30 ***Registration***

09:30-10:00 ***Jairo Sinova**, University of Mainz – Introduction to meeting – open questions, opportunities, SPICE & **Joaquín Fernández-Rossier,** International Nanotechnology Laboratory (INL), Portugal*

10:00-11:00 ***Cyrus Hirjibehedin (lecture),** University College London – Using Electronic Coupling To Control Magnetic Properties at the Atomic Scale*

11:00-11:30 *Coffee Break*

11:30-12:30 ***Markus Ternes (lecture),** Max-Planck Institute for Solid State Research – Revealing higher order scattering effects and induced correlations in atom and molecular spin systems*

12:30-14:00 *Lunch at Schloß Waldthausen Restaurant*

AFTERNOON SESSION

14:30-15:00 ***Sebastian Loth (talk),** Max Planck Institute, Hamburg – Spin-environment coupling explored with time-resolved STM*

15:00-15:30 ***Shichao Yan (talk),** Max Planck Institute, Hamburg – Exploring spin dynamics of the atomic-scale nanomagnets*

15:30-17:00 **Poster session & Coffee**

17:00-17:30 **Adrian Feiguin (talk),** *Northeastern University – Non-perturbative effects and the actual range of RKKY interactions in real materials*

17:30-18:00 ***Fabian Heidrich-Meisner (talk),** Ludwig Maximilian University of Munich – Spin and energy transport in quantum spin systems*

18:00-19:00 ***Discussion***

19:00-20:00 *Dinner at Schloß Waldthausen (buffet)*

Tuesday 18 August

MORNING SESSION

09:00-10:00 ***Roland Wiesendanger (lecture),** University of Hamburg – Revealing Properties and Interactions of Individual Magnetic Adatoms and Molecules by SP-STM*

10:00-10:30 ***Harald Brune (talk),** Ecole Polytechnique Fédérale de Lausanne (EPFL) – Single Atom Magnets*

10:30-11:00 *Coffee Break*

11:00-11:30 ***Susanne Baumann (talk),*** *IBM-Almaden and University of Basel – Spin and Orbital Magnetism of Atoms on MgO*

11:30-12:00 ***William Paul (talk),*** *IBM-Almaden – Quantum magnetism of Fe atoms on MgO/Ag(001): Spin relaxation times and spin resonance*

12:00-12:30 ***Manuel Steinbrecher (talk),*** *University of Hamburg – Tuning magnetic anisotropy, Kondo screening and Dzyaloshinskii-Moriya interaction in pairs of Fe adatoms*

12:30-14:00 *Lunch at Schloß Waldthausen Restaurant*

AFTERNOON SESSION

14:00-15:00 ***Ian Affleck (lecture),*** *University of British Columbia – The Majorana Fermion Screening Cloud*

15:00-17:00 **Poster session & Coffee**

17:00-17:30 ***David Jacob (talk),*** *Max Planck Institute Halle – Competition between quantum spin tunneling and Kondo effect*

17:30-18:00 **Stefan Blügel (talk),** *Forschungszentrum Jülich – Magnetism in Clusters, chains and films at metal surfaces - theory in comparison to experiment*

18:30-19:00 ***Discussion***

19:00-20:00 *Dinner at Schloß Waldthausen (buffet)*

Wednesday 19 August

MORNING SESSION

9:00-10:00 ***Thierry Giamarchi (talk),*** *DQMP, University of Geneva – Quantum spins in restricted geometries*

10:00-10:30 ***Oleg Starykh (talk),*** *University of Utah – Unusual phases of antiferromagnetic spin chains with uniform Dzyaloshinskii-Moriya interaction*

10:30-11:00 *Coffee Break*

11:00-11:30 ***Sander Otte (talk),*** *Delft University of Technology – Atomic spin chains as testing ground for quantum magnetism*

11:30-12:00 ***Fernando Delgado (talk),*** *Centro de Física de Materiales, CSIC-UPV/EHU – Probing fractional edge states with STM-based inelastic electron tunneling spectroscopy*

12:00-12:30 ***Pavel Jelinek (talk)****, Institute of Physics of the ASCR – Investigate molecular Kondo regime by means of simultaneous AFM/STM measurements*

12:30-14:00 *Lunch at Schloß Waldthausen Restaurant*

AFTERNOON SESSION

14:00-14:30 ***Ivan Brihuega (talk),*** *Universidad Autónoma de Madrid – Atomic-scale control of graphene magnetism using hydrogen atoms*

14:30-15:00 ***Eugene Mishchenko (talk),*** *University of Utah – Effective interaction and diffusion of resonant adatoms on graphene*

15:00-18:00 **Excursion**

19:00-20:00 *Dinner at the restaurant Heiliggeist*

Thursday 20 August

MORNING SESSION

09:00-10:00 ***Leonid Glazman (lecture),*** *Yale University – Topological Superconductivity with Magnetic Atoms*

10:00-10:30 ***Stevan Nadj-Perge (talk),*** *Delft University of Technology – Majorana bound states in atomic chains on a superconductor*

10:30-11:00 *Coffee Break*

11:00-11:30 ***Katharina Franke (talk),*** *Freie Universität Berlin – Electron transport through Shiba states induced by magnetic adsorbates on a superconductor*

11:30-12:00 **Tristan Cren (talk***), Institut des NanoSciences de Paris, CNRS & UPMC – Long range coherent magnetic bound states in superconductors*

12:00-12:30 ***Rok Zitko (talk),*** *Jozef Stefan Institute – Strong correlation effects in sub-gap tunneling spectra*

12:30-14:00 *Lunch at Schloß Waldthausen Restaurant*

AFTERNOON SESSION

14:00-14:30 ***Leonardo Banchi (talk),*** *University College London – Information Transfer in Magnetic Adatom Chains*

14:30-15:00 ***Nicolas Lorente (talk),*** *CFM - CSIC – Magnetic molecules as building blocks for quantum magnetism*

15:00-15:30 *Coffee Break*

15:30-16:00 ***Andrea Taroni (talk),*** *Nature Publishing Group – Inside Nature Physics*

16:00-17:00 ***Frédéric Mila (lecture),*** *Ecole Polytechnique Federale de Lausanne – Frustrated magnetism in 1D*

17:00-17:30 **Discussion**

17:30-18:00 **Final Remarks**

19:00-20:00 *Dinner at Schloß Waldthausen (buffet)*

Poster titles:

Precision control of the dynamical properties of single Co spins by local probe tips and hydrogenation,
Oleg Brovko

Spin dynamics of atomic clusters on metallic surfaces,
Tamene-Regassa Dasa

Hydrogen adatoms as building blocks for Magnetism in grapheme,
Noel Garcia

Molecular spin chains: framework for testing Haldane conjecture,
Jan Girovsky

Subatomic resolution force microscopy reveals internal structure and adsoprtion sites of small iron clusters,
Ferdinand Huber

Magnetic molecules and adatoms at functionalized surfaces,
Floris Kalff

Magnetic adatoms as memory bits: A quantum master equation analysis,
Christian Karlewski

Quasi-particle Interference Scattering of Spin-Polarized Shockley-Like Surface State Electrons: Ni(111),
Jeannette Kemmer

Core-Level Spectra in the Dynamical Mean-Field Theory,
Jindrich Kolorenc

Spin proximity by molecular oxygen in grapheme,
Jose Lado

Imaging adatoms, rest atoms and defects on Si(111)-7x7 with a CO terminated metal tip,
Daniel Meuer

Kondo Physics in Metallic Atomic Size Contacts,
Bernat Olivera

Attempts to test an alternative electrodynamic theory of superconductors,
Angelo Peronio

Tuning the Kondo coupling strength of a single molecule,
Olof Peters

The role of magnetic interactions on anisotropy and magnetization dynamics in deposited nanostructures,
Pedro Ruiz-Diaz

Quantum approach for calculation of magnetization of deposited clusters,
Ilia Sivkov

Incipient quantum phase transition in finite atomic spin chains?,
Ranko Toskovic

Charge transport through a 4f spin state in a single molecule magnet,
Ben Warner

Periodic electronic modulation and magnetic spin order of thin iron films on Rh(001),
Stefan Wilfert

Exploring nanomagnets at the atomic scale,
Shichao Yan

Effect of surface strain on magnetic anisotropy of deposited metallic nanowires: first-principles study
Julia Korobova presented by Pedro Ruiz Diaz