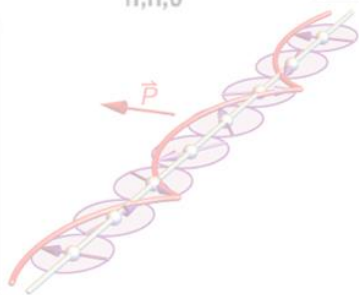
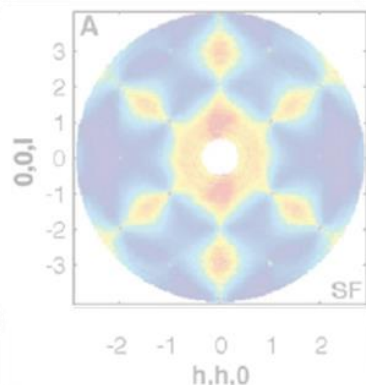
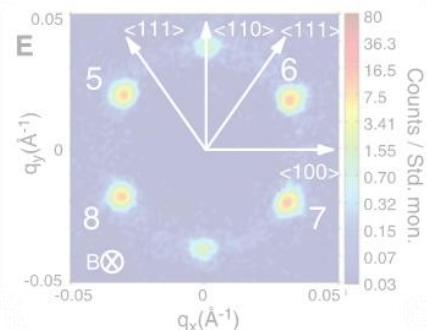


The European School on Magnetism 2017

Condensed Matter Magnetism: Bulk meets Nano





THE EUROPEAN SCHOOL ON MAGNETISM

2017

CONDENSED MATTER MAGNETISM BULK MEETS NANO

Oct 9 - 21 [2017]
Cargèse (Corsica)
France

Organizing committee

Virginie SIMONET (chair), Grenoble
Ingrid MERTEL (co-chair), Halle
Olivier FRUCHART, Grenoble
Olivier ISNARD, Grenoble
Claudine LACROIX, Grenoble

Scientific committee

F. ALBERTINI, Parma
S. BLUNDELL, Oxford
M. COEY, Dublin
V. CROS, Paris
A. DEAC, Dresden
T. DIETL, Warsaw
C. FELSER, Dresden
O. FRUCHART, Grenoble
L. HEYDERMAN, Villigen & Zürich
O. ISNARD, Grenoble
A. KIRILYUK, Nijmegen
C. LACROIX, Grenoble
C. PFLEIDERER, Munich
M. PRZYBYLSKI, Krakow
K. SANDERMAN, New-York & London
V. SIMONET, Grenoble
N. SPALDIN, Zürich
J. SPALEK, Krakow
J. STAUNTON, Warwick
S. VALENZUELA, Barcelona
W. WULFHEKEL, Karlsruhe
A. ZORKO, Ljubljana

Scope

The European School on Magnetism (ESM) is a joint action of the European magnetism community, and is organized in cooperation with the JEMS conference (Joint European Magnetic Symposia). ESM aims at providing young scientists with a thorough up-to-date insight into the fundamentals of magnetism.

As with previous sessions of ESM, the 2017 School is based on a broad range of lectures, with special attention given to a specific topic. ESM 2017 will consider modern aspects overlapping condensed matter in bulk materials, and nanomagnetism/spintronics. This covers a wide range of fundamental phenomena deeply rooted in condensed matter physics, and opportunities for applications. The School will be an opportunity for young scientists from the two fields, to meet and share their expertise.

Topics

- Basic concepts
- Magnetism in matter
- General tools: symmetry and dimensionality, measurement techniques, topology in magnetism
- Magnetization textures and dynamics
- Materials and effects
- Industry perspectives

Means of learning

Promoting a close interaction between lecturers and attendees is a crucial aspect of ESM. To achieve this, the programme alternates between lectures, question sessions, analytical and numerical practicals, debates, access to a library dedicated to magnetism, and poster sessions dedicated to the attendees' activities. The School is held in a warm atmosphere with many social activities.

Lecturers

C. Back (de), B. Canals (fr), A. Cano (fr/ch), L. Chapon (fr), O. Fruchart (fr), M. Kenzelmann (ch), I. Mertig (de), Y. Millev (APS), G. Nénert (PANalytical BV), H. Renkow (ch), L. Ranno (fr), J. Staunton (uk), S. Toth (ch), W. Wulfsberg (de)



THE EUROPEAN
MAGNETISM ASSOCIATION



<http://magnetism.eu/school/2017>



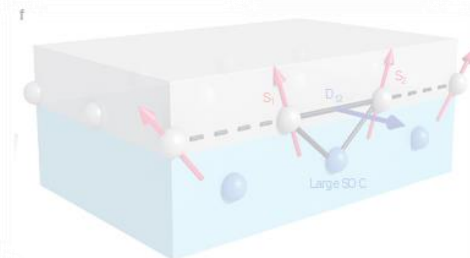
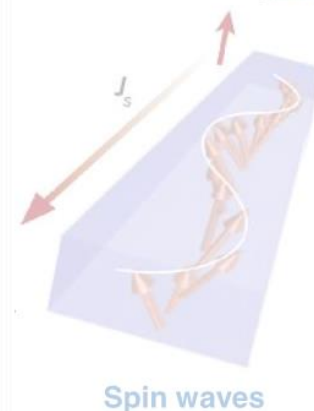
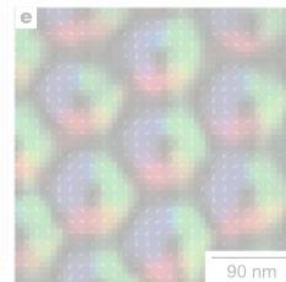










PRACTICAL INFORMATION

- *Tap water is perfectly drinkable and healthy*
- *Take a light with you if you walk from IESC to village in the dark*
- *Survival kit of French language in the booklet*
- *Wifi available at IESC. Please use it for learning purposes during the lectures*

HISTORY of the SCHOOL

Start: French-Romanian schools Grenoble / Cluj-Napoca

11th school since 1997

- *Nanomagnetism* (1997) Oradea
- *High performance permanent magnets* (1999) Cluj-Napoca
- *Spectroscopic analysis* (2001) Cluj
- *Magnetism of nanoscopic systems and hybrid structures* (2003) Brasov
- *New experimental approaches in magnetism* (2005) Constanta
- *New Magnetic Materials and their Functions* (2007) Cluj
- *Models in magnetism: from basic aspects to practical uses* (2009) Timisoara
- *Time-dependent phenomena in magnetism* (2011) Târgoviște
- *Magnetism for Energy* (2013) Cargèse
- *From basic concepts to spin currents* (2015) Cluj
- ***Condensed Matter Magnetism: bulk meets nano* (2017) Cargèse**
- *Magnetism by light* (2018) Kraków
- *Experimental techniques* (2019) Brno
- ... (2020) Saarbrück



The EUROPEAN MAGNETISM ASSOCIATION

A voice for Magnetism in Europe



EMA

ESM

JEMS

ACTIONS

JOBS

AGENDA

LINKS



An organization to promote magnetism in Europe

Mission

- Advance knowledge
- Higher education
- Promote applications, link academics and industry
- Representation of the magnetics community (European Physical Society, policy makers etc.)

Actions

- ESM
- Conference: JEMS
- Networking through the web site:
 - News
 - Job market
 - Agenda of events
 - Links (societies, tools, books, companies)

Web site: <http://magnetism.eu>



The EUROPEAN MAGNETISM ASSOCIATION

A voice for Magnetism in Europe

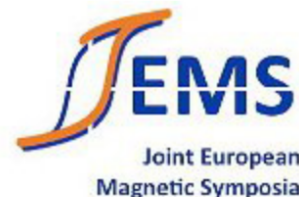

[EMA](#)
[ESM](#)
[JEMS](#)
[ACTIONS](#)
[JOBS](#)
[AGENDA](#)
[LINKS](#)

[Home](#) > [JEMS](#)


JEMS

The Joint European Magnetic Symposia are the most important and comprehensive conference on magnetism in Europe. JEMS focuses on a broad range of topics embracing applicative and fundamental aspects of magnetism, as well as novel magnetic materials. Presentations consist of plenary, semi-plenary, and contributed talks, complemented by poster sessions. A number of invited speakers give lectures on important recent advances in the field. The attendance of young students is welcome.

Previous JEMS conferences took place in Grenoble (2001), Dresden (2004), San Sebastian (2006), Dublin (2008), Krakow (2010), Parma (2012), Rhodes (2013) and Glasgow (2016). Starting 2012 JEMS is being held every year, except those when Intermag or ICM take place in Europe (e.g. Intermag2014, ICM2015 and Intermag2017). The latest conference:



JEMS2016

The eighth edition of the event was held in **Glasgow, Scotland, UK, 22-26 August 2016**.

The **forthcoming conferences** are:

JEMS2018

To be held in **Mainz, Germany, 3-7 September 2018**.

JEMS2019

To be held in **Uppsala, Sweden, 26-30 August 2019**.

JEMS

◆ **Presentation**

◆ **International
Advisory Committee**

◆ **Editions**

JEMS 2018

- where: **Mainz, Germany**
- when: **3-7 September 2018**
- [webpage](#)
- Abstract submission open!

NEWS



3D Printing of Polymer

Web site: <http://magnetism.eu/jems>

WHAT is ESM ?

Objectives

- ⇒ Modern education on the foundations of Magnetism
 - Basic lectures (50%)
 - Specialized lectures (50%)
- ⇒ Networking
 - Student ↔ Student ↔ Lecturer
 - Student ↔ Industrial

Key facts

- ⇒ **Large** : 85 students
- ⇒ **Long** : 11 full days
- ⇒ **Broad scope** ; mix communities
- ⇒ **Affordable for all** :
low cost; a few grants offered
- ⇒ **Timing**: every 2 years (so far),
will change to every year starting 2018

About ESM 2017

Organizing committee:

Olivier Fruchart, Virginie Simonet, Olivier Isnard, Claudine Lacroix, Ingrid Mertig, Muriel Martinez (secretary SFP)

Local student committee: Vadim Cathelin, Elie Ravoavy, Titiksha Srivasta, Beatrix Trapp, Dominika Zákutná



Scientific Advisory Committee: Franca Albertini, Stephen Blundell, Michael Coey, Vincent Cros, Alina Deac, Claudia Felser, Olivier Fruchart, Laura Heyderman, Olivier Isnard, Andrei Kirilyuk, Claudine Lacroix, Christian Pfleiderer, Marek Przybylski, Karl Sandeman, Virginie Simonet, Nicola Spaldin, Josef Spalek, Julie Staunton, Sergio O. Valenzuela, Wulf Wulfhekel, Andrej Zorko

Location



Support

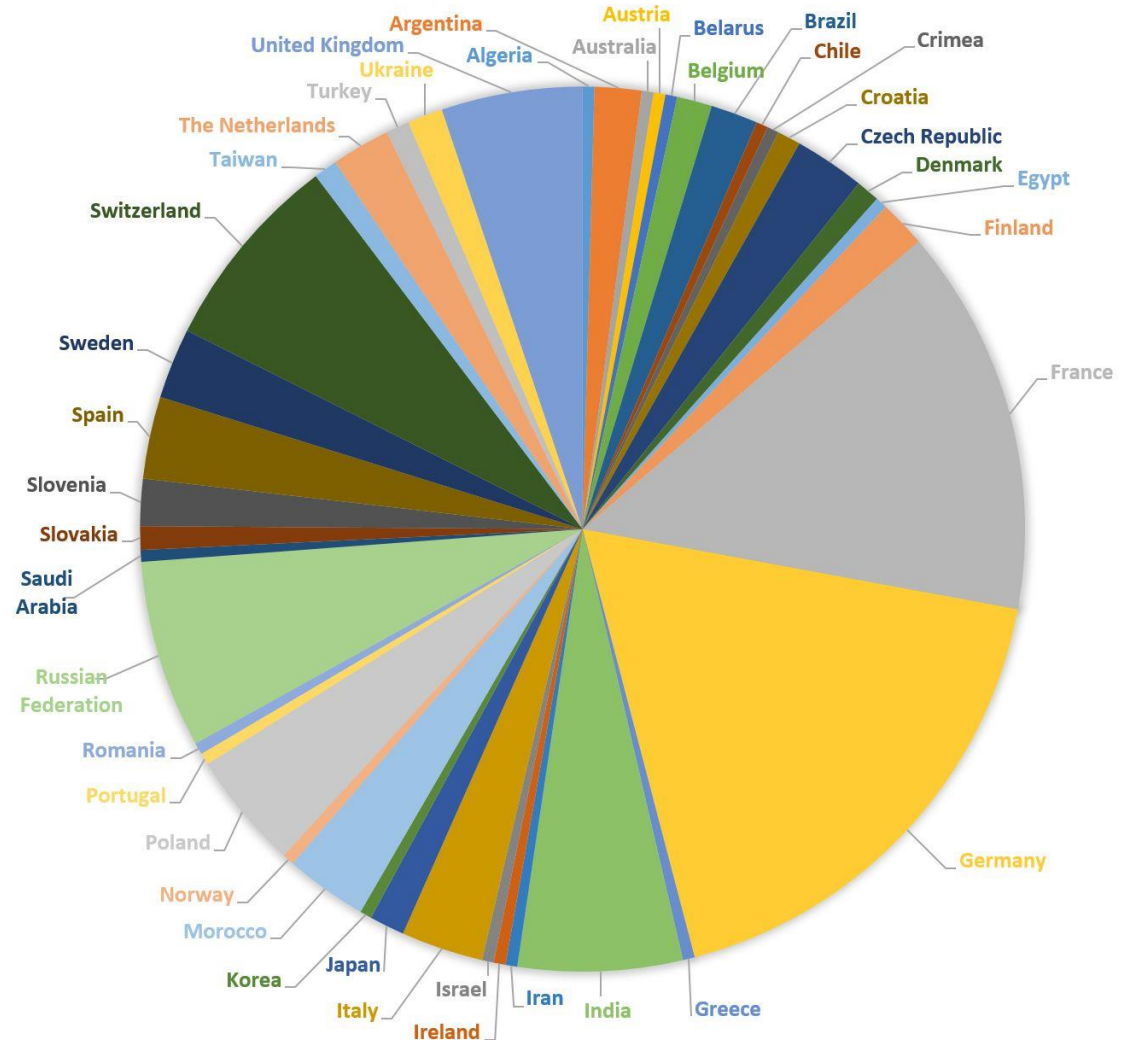


Université
franco-allemande
Deutsch-Französische
Hochschule



YOU !

REQUEST FOR PARTICIPATION IN ESM2017



- ⇒ 235 requests,
85 participants, 30 % ladies
- ⇒ Labs from 41 countries
- Mainly Europe
- 10 % Asia, Middle-East, Americas
- ⇒ Almost 2/3 rejection rate

Motivations for 2017 topics

Two main communities, **Bulk and Nano**, working in the field of magnetism

Different: aims, tools, materials, BUT:

Recent convergence around some topics: spin-orbit coupling, topological matter, magnetic chirality, skyrmions, oxitronics, multiferroics, magnetic excitations...

- Aim: **Foster cross-fertilization.** Prepare the next generation of researchers in magnetism with a foot in each field!

Motivations for 2017 topics: **the bulk side**

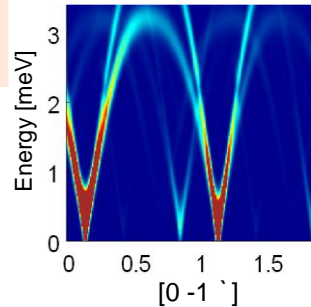
- Find new behaviors at the origin of concepts/models spreadable in other fields
- Microscopic mechanisms and unconventional behaviors of complex materials.

- Extreme conditions
- Several degrees of freedom (lattice, spin, orbit, charge, ...)
- Complex bulk materials
- Competing effects



Dedicated tools:

- Macroscopic measurements
- Local probes: NMR, μ SR, ESR...
- Spectroscopy (Raman, optics, THz)
- Neutron and X ray diffraction
- > work in reciprocal space



Topics: Multiferroics/magnetoelectrics; Excitations (spinwaves, fractional); Topological magnetism; Spin-orbit coupling; Chirality, skyrmions, spin textures; Magnetic frustration; Quantum magnetism, low dimensionality

Motivations for 2017 topics: **the Nano side**

- New functionalities associated with nanoscale and interfaces
- High potential of nanomagnetic systems for present and future technologies

- Aiming at room temperature
- Simple materials, designed at the nanoscale or in heterostructures
- Tools: microscopy, micromagnetic calculations, X-ray dichroism
- Physics + applications

Topics:

Spintronics

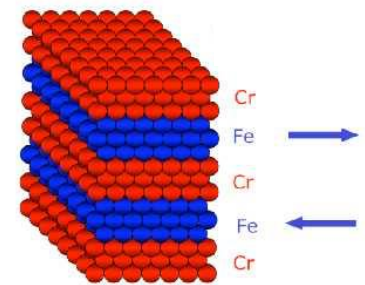
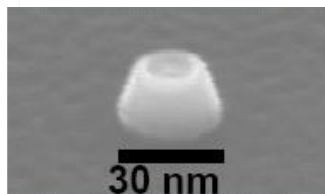
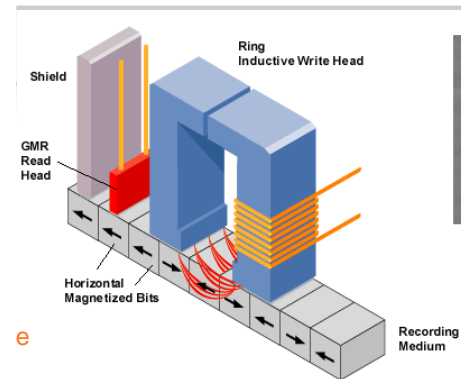
High magnetoresistance / Spin transfer

Magnetization dynamics, Magnonics

Novel way to control magnetism

Skymionics

Oxytronics, antiferromagnetic spintronics



*Giant magnetoresistance
Fert, Grünberg, et al. 1988*

ESM2017, Introduction, Cargèse

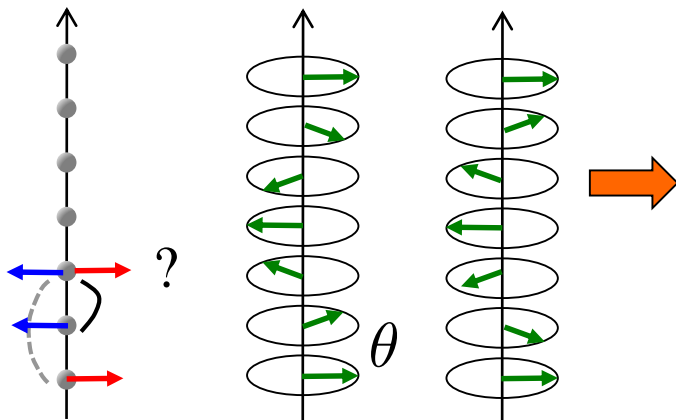
Motivations for 2017 topics. Example: frustration

Magnetic frustration: one or several constraints can not be satisfied simultaneously

Through competing interactions:

Spin chain

AFM J_1
 \approx AFM J_2

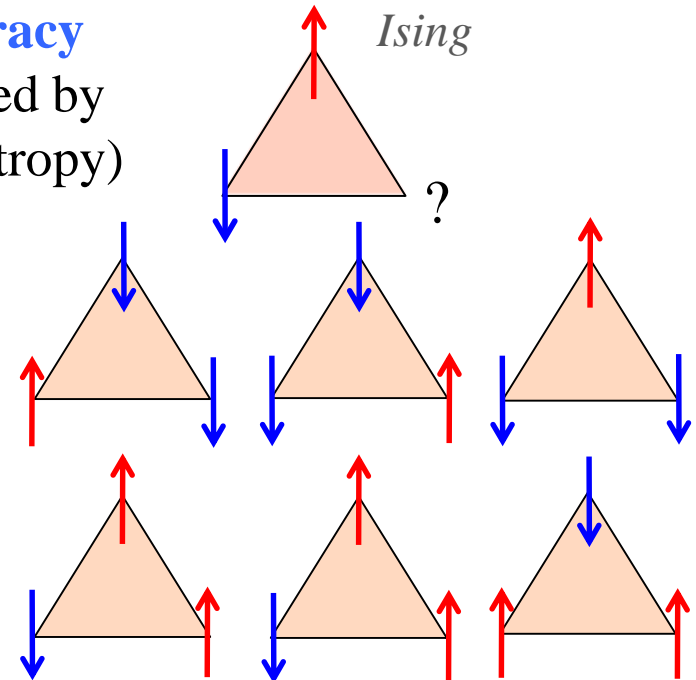


Complex
magnetic
order

Through the geometry of the lattice:

Degeneracy

(measured by
finite entropy)

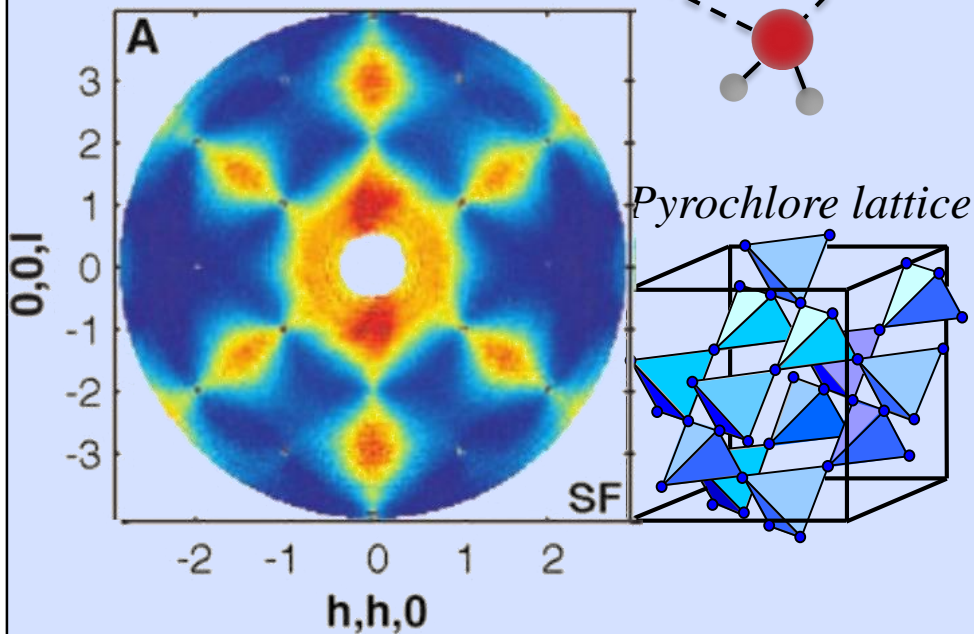


Motivations for 2017 topics. Example: frustration

Bulk

Exotic fluctuating states and excitations:
Spin liquids, spin ices (magnetic monopole)
Coulomb phases, ...

Neutron diffuse scattering

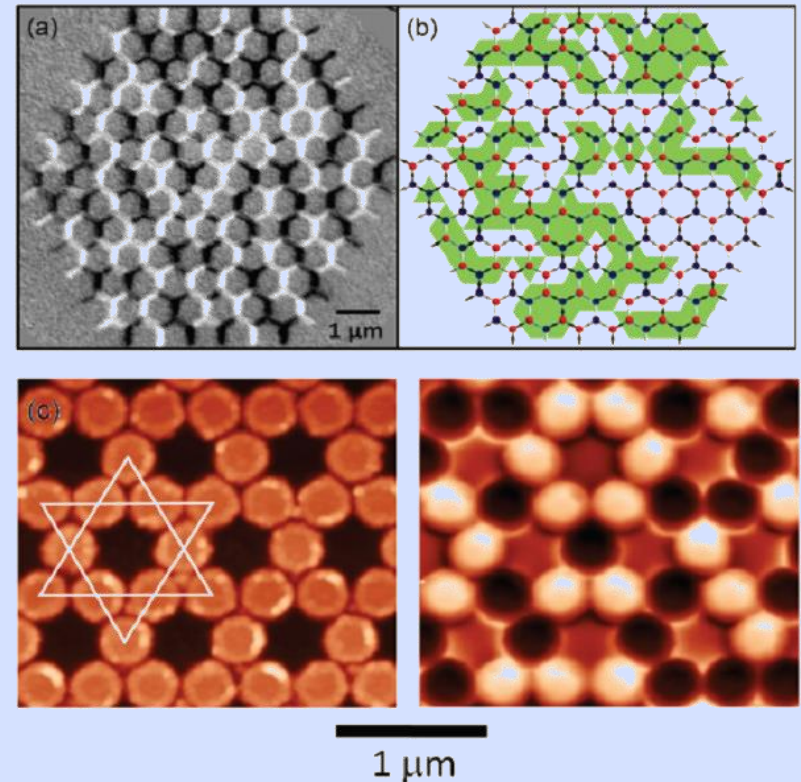


Nano

Artificial spin ice

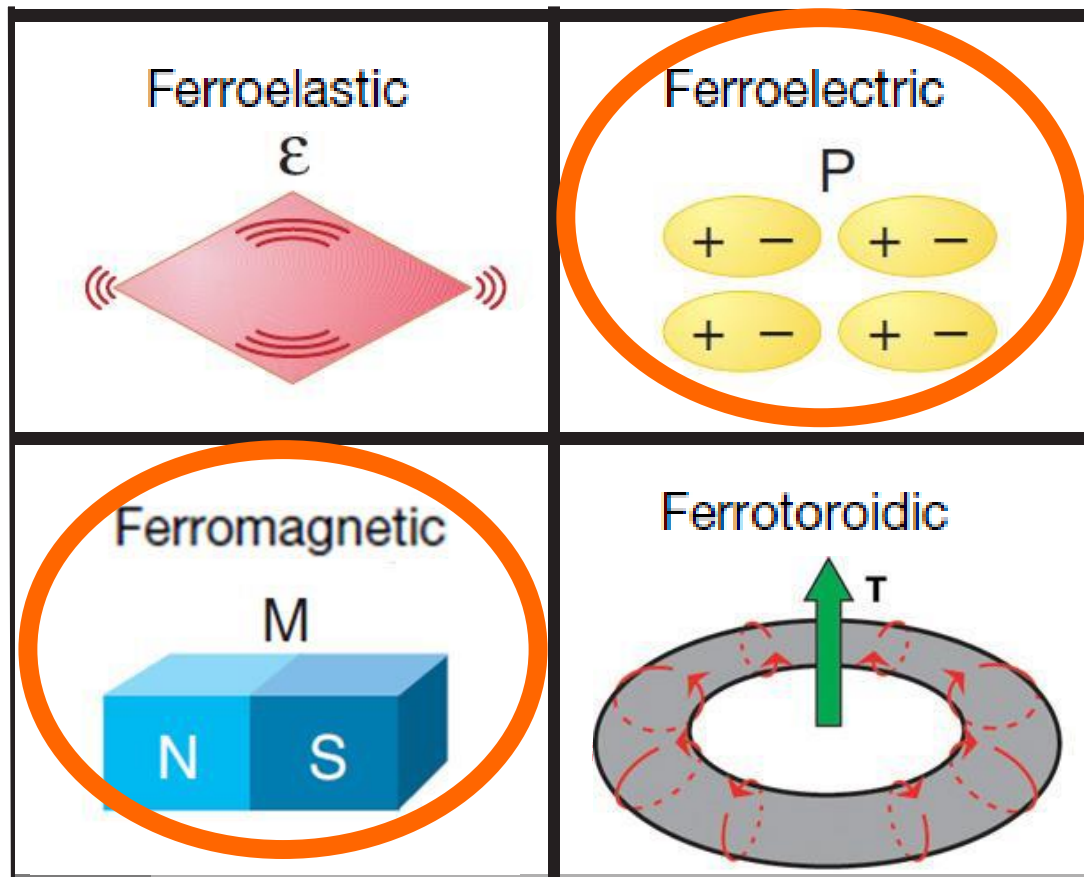
Nanomagnetic = macrospin

Designed at will, models can be tested



Motivations for 2017 topics. **Example: multiferroism**

Coexistence of at least two (anti)ferroic orders among :
ferroelasticity, ferromagnetism, ferroelectricity, and ferrotoroidicity



+ Hysteresis cycle,
presence of switchable domains

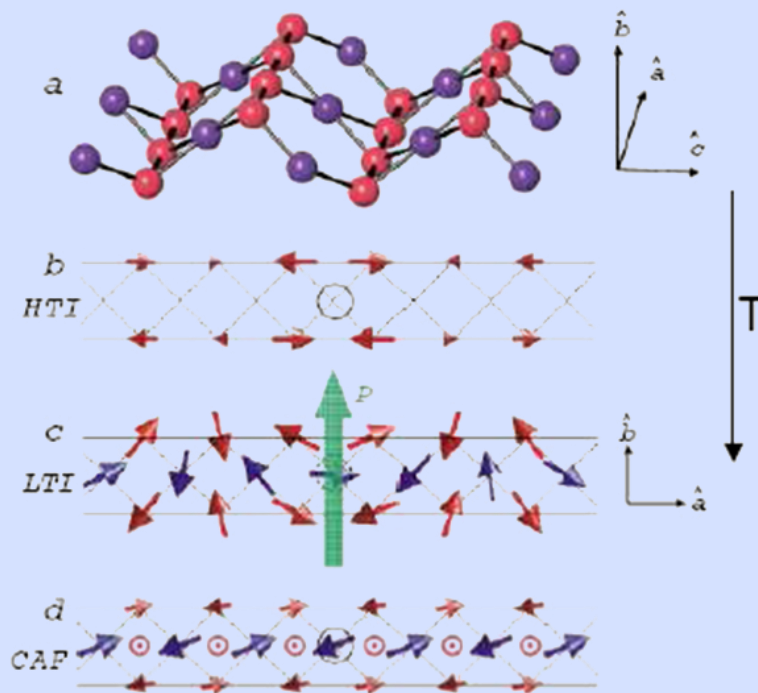
Possible coupling
between order parameters

Van Aken et al. Nature 449 (2007)

Motivations for 2017 topics. Example: multiferroism

Bulk

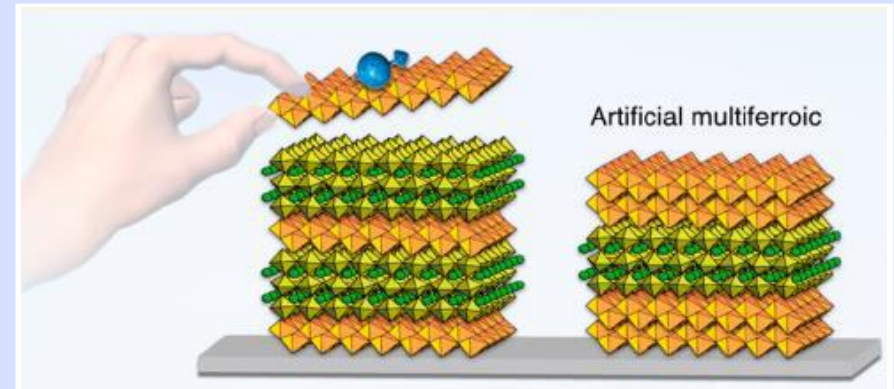
Complex (H,T) phase diagram
Complex magnetic structures (ex. cycloids)
Ferroelectricity can be induced by magnetism
Strong Magnetoelectric coupling



$Ni_3V_2O_8$ Lawes PRL 2005

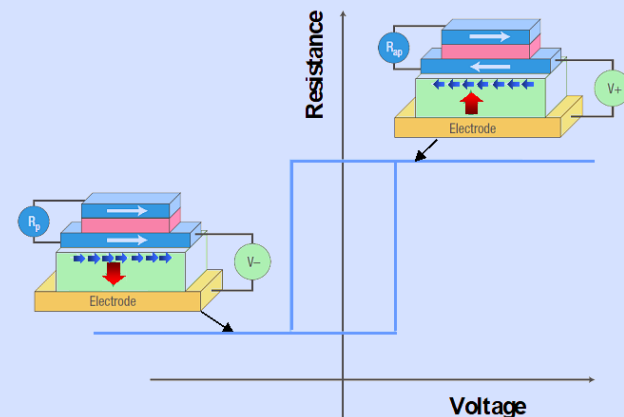
Nano

Use interfaces instead of compounds



Towards a magnetoelectric memory

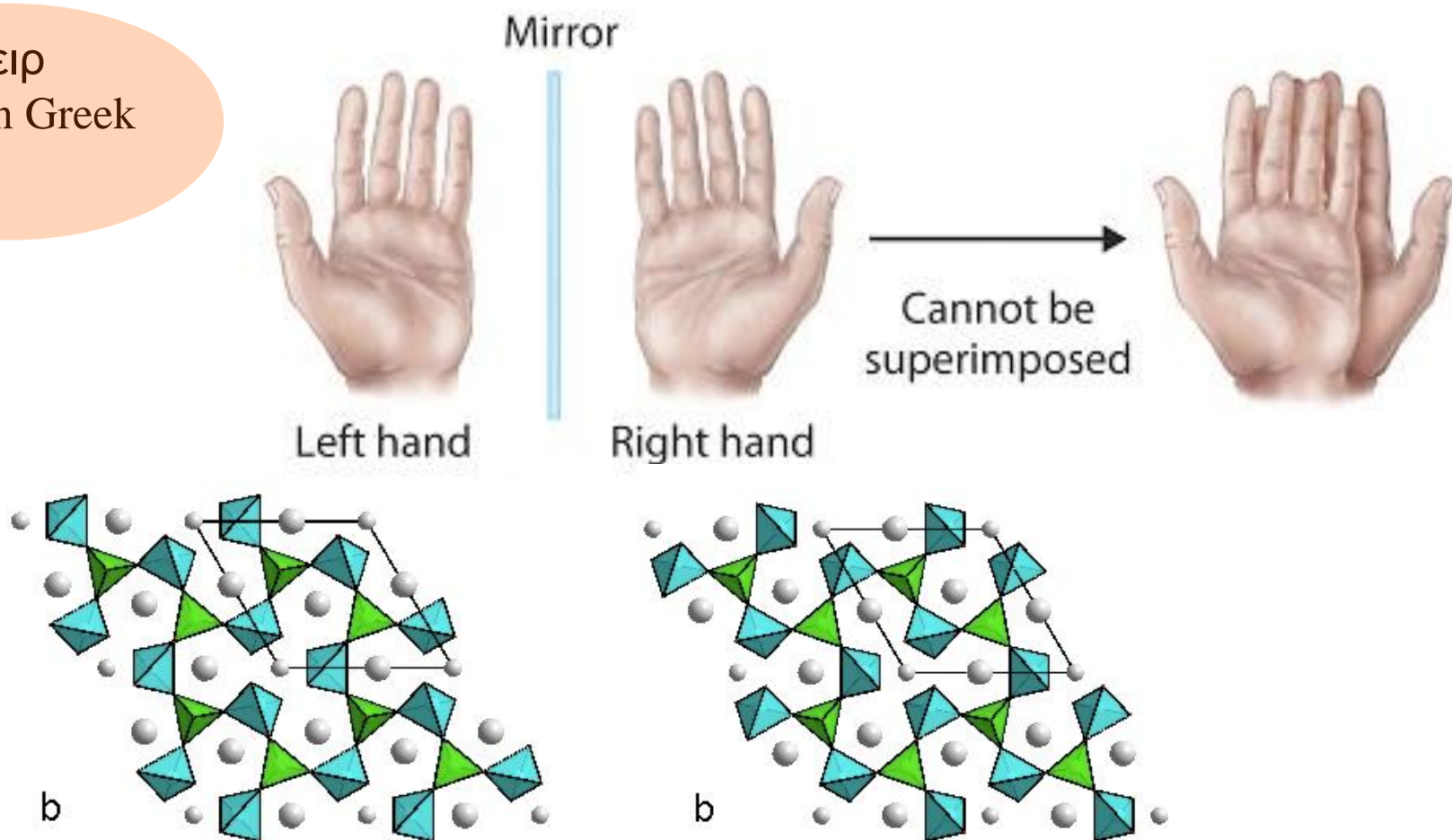
M. Bibes et al., Nature Materials 7 (6), 425 (2008)



Motivations for 2017 topics. **Example: chirality**

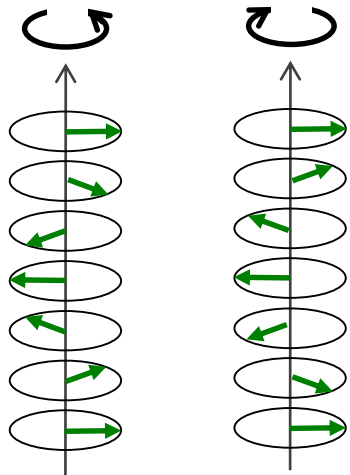
Distinguishes a phenomenon from its counterpart in a mirror (or inversion center)

Χειρ
Hand in Greek

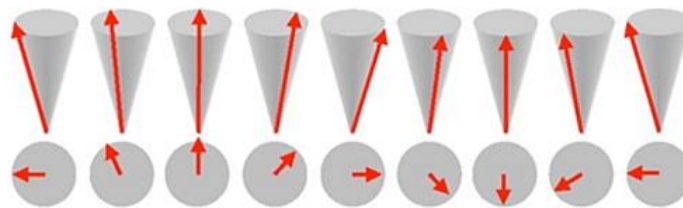


Motivations for 2017 topics. **Example: chirality**

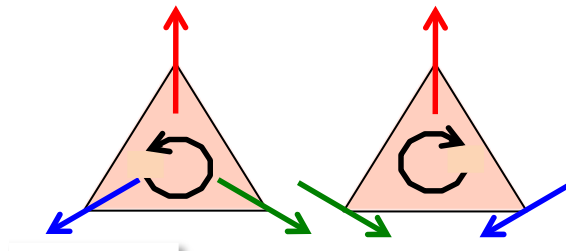
Extended definition of chirality in Magnetism → Sense of rotation of non collinear spins along an orientated line



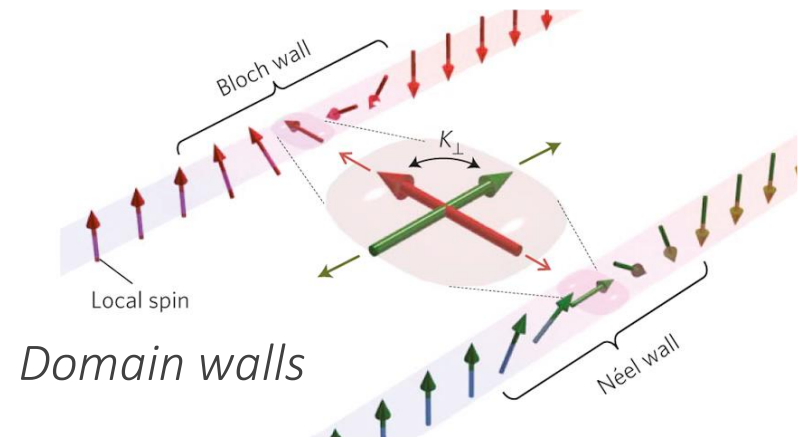
Magnetic helix



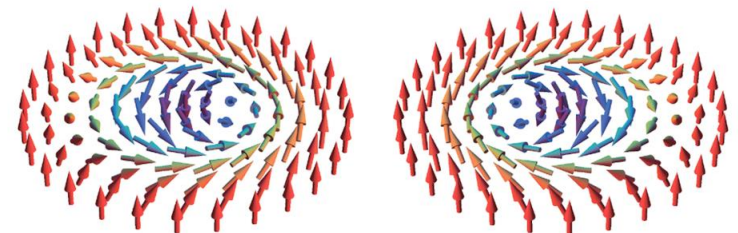
Spinwaves



Triangular chirality



Domain walls

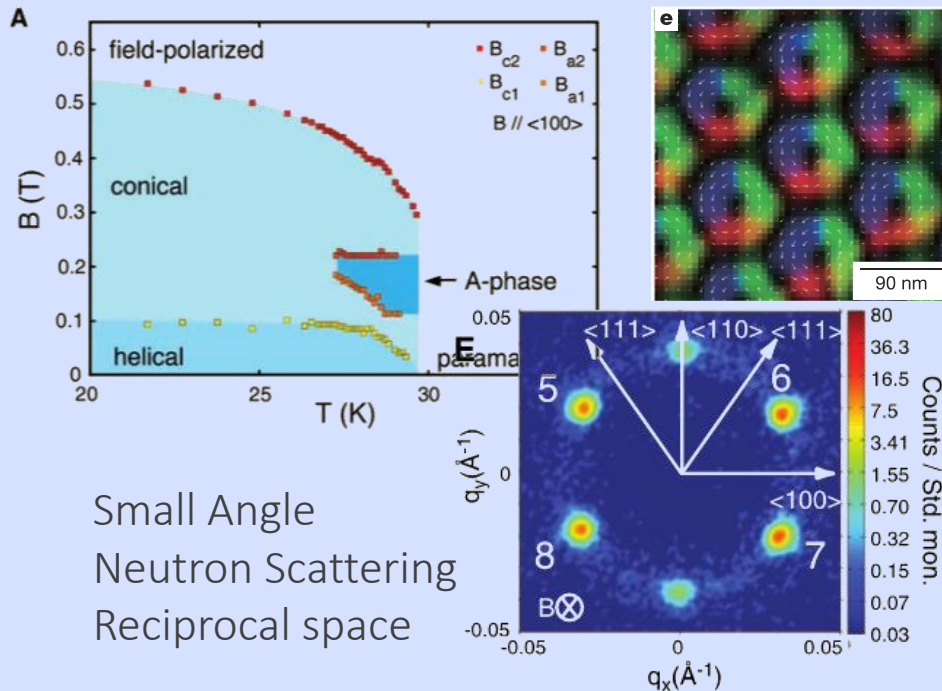


Skyrmions

Motivations for 2017 topics. Example: chirality

Skymions in bulk

MnSi



Non-centrosym MnSi, FeGe, FeCoSi metals, and Cu_2OSeO_3 insulator
Skyrmion hexagonal lattice

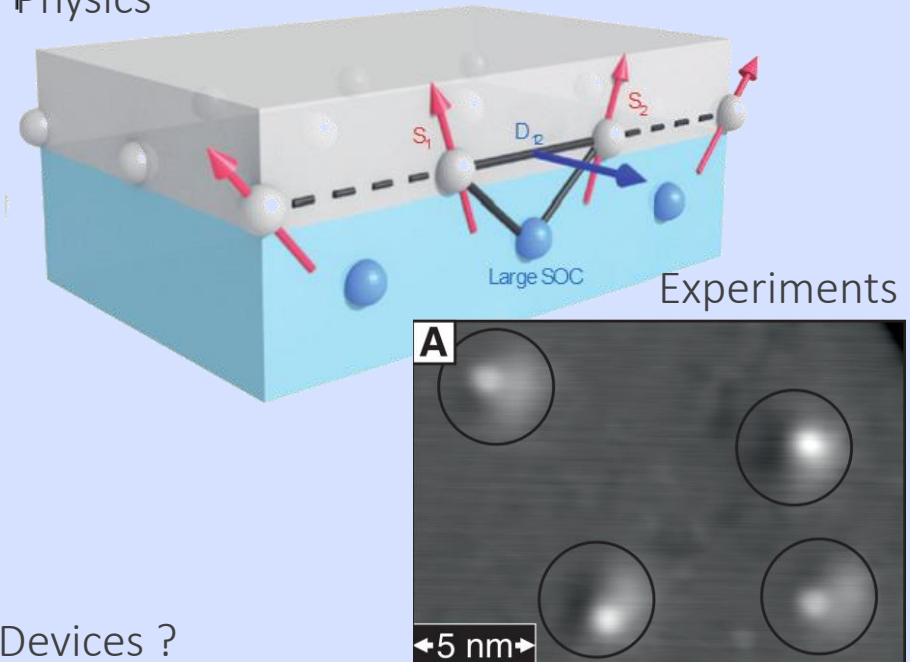
Mühlbauer *et al.* Science 2009

Yu *et al.* Nature 2010

Seki *et al.* Science 2012

Skymions in nano

Physics



Devices ?



S. Heinze *et al.* Nat. Phys. 2011,

N. Romming, Science (2013)

Fert *et al.* Nat. Nanotech. 2013

Motivations for 2017 topics. Example: spin-orbit coupling

Coupling between spin and orbital angular momenta, short-range relativistic effect between first neighbors. Strongest for heavier atoms like Ir, Pt

Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓ Period																		
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	**	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Uut	114 Fl	115 Uup	116 Lv	117 Uus	118 Uuo
		*	57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
		**	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

3d ferromagnets

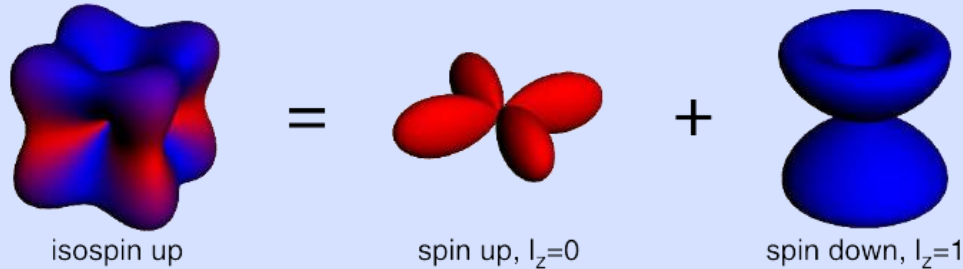
$$E_{\text{SO}} \sim \mathbf{L} \cdot \mathbf{S}$$

5d heavy metals

Motivations for 2017 topics. Example: spin-orbit coupling

Bulk

Recent interest in iridates
Prediction of a novel entangled
spin-orbital state $J_{\text{eff}}=1/2$



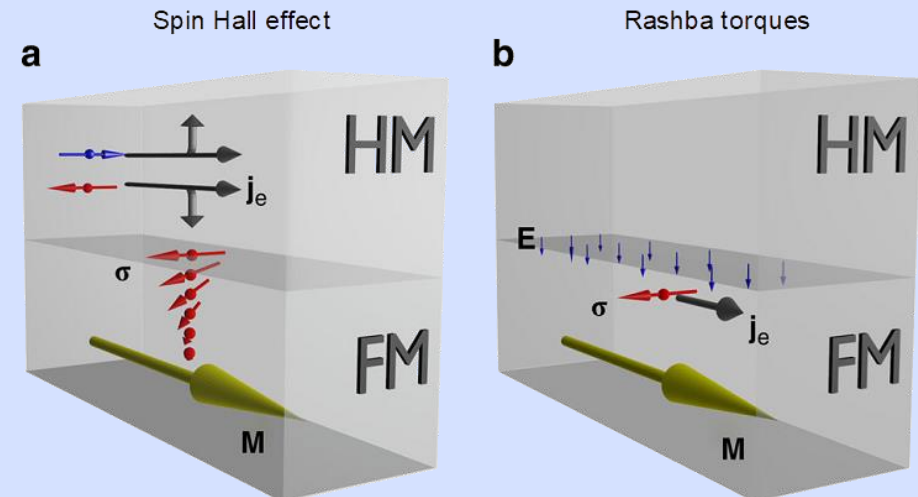
Consequences:

- Spin-orbit driven Mott insulator
- Topological phases
- New anisotropy of magnetic interactions leading to novel ground states (ex. Kitaev spin liquid) and excitations (ex. Majorana fermions)

Nano

Multilayers with heavy atoms (Pt, Ir, Ta)

- Strong Dzyaloshinskii-Moryia interactions \rightarrow skyrmions & chiral walls
- Rashba effect, spin-orbit torque, Hall effect \rightarrow magnetization manipulation & reading of spin currents



Enhanced-efficiency conversion effects for spintronic applications

Lecturers

I. Basic concepts

Fields, Units, Magnetostatics

Magnetism of atoms and ions

II. Magnetism in matter

Mean field theory of magnetic ordering

Magnetic interactions

Spin-orbit coupling and crystal electric field

III. General tools

Magnetic phase transitions, symmetry, magnetic structures.

Magnetic diffraction with neutrons and X-ray scattering

Measurement techniques: the nano side

Topology in Magnetism.

IV. Magnetization textures and dynamics

Spin waves and others excitations, bulk and nano

Domains and domain walls in ferroics

V. Materials and effects

Multiferroics

Magnetization processes in bulk and nano

Transport and magnetotransport

Magnetic frustration (bulk and nano)

Skyrmions and other chiral textures

IX. Career perspectives

Scientific publishing - Views and opportunities

Entering the industry job market after a PhD

2017 European School on Magnetism: « Condensed Matter Magnetism: bulk meets nano »



09 – 21st October 2017 – Cargèse, Corsica, France

Chair

co-Chair

Organizers

Chair 2018

Virginie SIMONET

Virginie.Simonet@neel.cnrs.fr
Grenoble, France



Unconventional bulk magnetism,
large scale facilities
15/10 → 20/10

Ingrid MERTIG

ingrid.mertig@physik.uni-halle.de
Halle, Germany



Theory of condensed matter
magnetism
12/10 → 15/10

Olivier FRUCHART

Olivier.FRUCHART@cea.fr
Grenoble, France



Nanomagnetism and spintronic
of domain walls
09/10 → 21/10

Olivier ISNARD

olivier.isnard@neel.cnrs.fr
Grenoble, France



Magnetic materials
XX/10 → XX/10

Marek PRZYBYLSKI

marprzyb@uci.agh.edu.pl
Kraków, Poland



Surface and thin-film
magnetisms
17/10 → 22/10

Lecturers

Christian BACK

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Regensburg, Germany



Spintronics and magnetization
dynamics
15/10 → 19/10

Benjamin CANALS

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Grenoble, France



Theory of magnetic
frustration
12/10 → 20/10

Andres CANO

andres.cano@cmcb.cnrs.fr
Bordeaux, France



Theory in condensed matter physics,
multiferroics to superconductivity
15/10 → 21/10

Laurent CHAPON

laurent.chapon@stfc.ac.uk
Diamond, UK



Frustrated magnetic oxides, multiferroics,
neutron and X-ray scattering
09/10 → 15/10

Michel KENZELMANN

michel.kenzelmann@psi.ch
Villigen, Switzerland



Quantum and frustrated magnetism,
multiferroism, heavy-fermion
superconductivity, neutron scattering
15/10 → 21/10

Yonko MILLEV

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APS Associate Editor



Theory of magnetism
14/10 → 21/10

Gwilherm NÉNERT

gwilherm.nenert@panalytical.com
PANalytical B. V.



Multiferroic materials
and XRD studies
18/10 → 20/10

Laurent RANNO

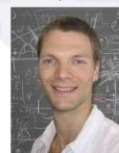
Laurent.Ranno@neel.cnrs.fr
Grenoble, France



Nanomagnetism and
spintronics in thin films
09/10 → 16/10

Henrik M. RÖNNOW

henrik.ronnnow@epfl.ch
Lausanne, Switzerland



Quantum magnetism and strongly
correlated electron physics
14/10 → 21/10

Julie STAUNTON

J.B.Staunton@warwick.ac.uk
Warwick, UK



Ab initio theory of condensed matter
magnetism
14/10 → 18/10

Wulf WULFHEKEL

wulf.wulfhekel@kit.edu
Karlsruhe, Germany



Surface magnetism and
spintronics
09/10 → 12/10

Activities

	Monday 09/10/2017	Tuesday 10/10/2017	Wednesday 11/10/2017	Thursday 12/10/2017	Friday 13/10/2017	Saturday 14/10/2017	Sunday 15/10/2017	Monday 16/10/2017	Tuesday 17/10/2017	Wednesday 18/10/2017	Thursday 19/10/2017	Friday 20/10/2017	Saturday 21/10/2017
9h-9h30		Opening/Intro. OlivierFruchart	Magnetism of atoms 2/2 WulfWulfHekel	Ordering, mean field 2/2 WulfWulfHekel	Magnetic interactions 2/2 IngridMertig	Transport part 2/2 LaurentRanno		CE, SOC, anisotropy JulieStaunton	Excitation/spinwaves part 1/2 MichelKenzelmann	Topology in Magnetism HenrikBönnow	Frustration part 2/2 BenjaminCanals	Practicals/Library (Kenzelmann, Canals, Simonet)	Departure
9h30-10h		Tutorial Intro	Coffee	Coffee	Coffee	Coffee		Coffee	Coffee	Coffee	Coffee	Coffee	
10h-10h30													
10h30-11h													
11h-11h30		Field/Units/ Magnetostatics LaurentRanno	Questions	Practicals/Library Fruchart, Ranno, Isnard	Symmetries, phase transition 2/2 LaurentChapon	Symmetries, phase transition 2/2 LaurentChapon		Questions	Frustration part 1/2 BenjaminCanals	Magnetization processes 2/2 ChristianBack	Domain walls AndresCano	Skymions Chiral structures HenrikBönnow	
11h30-12h													
12h-12h30													
12h30-13h													
13h-13h30		Lunch	Lunch	Lunch	Lunch	Lunch		Lunch	Lunch	Lunch	Lunch	Lunch	
13h30-14h													
14h-14h30							Excursion's day						
14h30-15h	Arrival	Magnetism of atoms 1/2 WulfWulfHekel	Ordering, mean field 1/2 WulfWulfHekel		Transport part 1/2 LaurentRanno	Magnetic interactions 1/2 IngridMertig		Magnetization processes 1/2 ChristianBack	Multiferroics AndresCano	Questions	career perspectives Instrumentation GwilhermNéret	career perspectives Publishing YonkoMillev	
15h-15h30		clip poster	clip poster		clip poster	clip poster		Coffee	Coffee	Coffee	Coffee	Coffee	
15h30-16h													
16h-16h30		Techniques in Nano OlivierFruchart	Techniques in bulk LaurentChapon	Sports afternoon	Questions	Practicals/Library (Fruchart, Ranno, Isnard)		Poster session	Practicals/Library (Kenzelmann, Millev, Simonet)	Practicals/Library (Canals, Millev, Simonet)	Excitation/spinwaves part 2/2 MichelKenzelmann	Question, evaluation, and closing VirginieSimonet	
16h30-17h													
17h-17h30													
17h30-18h													
18h-18h30		Welcome party											
18h30-19h													
19h-19h30													
19h30-20h													
20h-20h30										Banquet			

- ⇒ 40h interactive lectures
- ⇒ Question sessions (8h)
- ⇒ Practicals (6h per student)
- ⇒ Poster session
- ⇒ Library dedicated to magnetism
- ⇒ Social activities
- ⇒ Industrial perspectives
- ⇒ Final critical analysis by students



Lectures

- ⇒ Lecturers may be stopped to request (re)explanations, raise questions etc.
- ⇒ Profile and dates on-site for each lecturer are displayed on lecturers poster
- ⇒ All slides online shortly after the end of the lecture
- ⇒ Repository of all lectures since 2003:
<http://magnetism.eu/school/repository>



Question sessions

	Monday 09/10/2017	Tuesday 10/10/2017	Wednesday 11/10/2017	Thursday 12/10/2017	Friday 13/10/2017	Saturday 14/10/2017	Sunday 15/10/2017	Monday 16/10/2017	Tuesday 17/10/2017	Wednesday 18/10/2017	Thursday 19/10/2017	Friday 20/10/2017	Saturday 21/10/2017
9h-9h30		Opening/Intro. Olivier Fruchart	Magnetism of atoms 2/2 Wulf WulfHekel	Ordering, mean field 2/2 Wulf WulfHekel	Magnetic interactions 2/2 Ingrid Mertig	Transport part 2/2 Laurent Ranno		CEF, SOC, anisotropy Julie Staunton	Excitation/spinwaves part 1/2 Michel Kenzelmann	Topology in Magnetism Henrik Ønnow	Frustration part 2/2 Benjamin Canals	Practicals/Library (Kenzelmann, Canals, Simonet)	Departure
9h30-10h		Tutorial Intro	Coffee	Coffee	Coffee	Coffee		Coffee	Coffee	Coffee	Coffee	Coffee	
10h-10h30													
10h30-11h													
11h-11h30													
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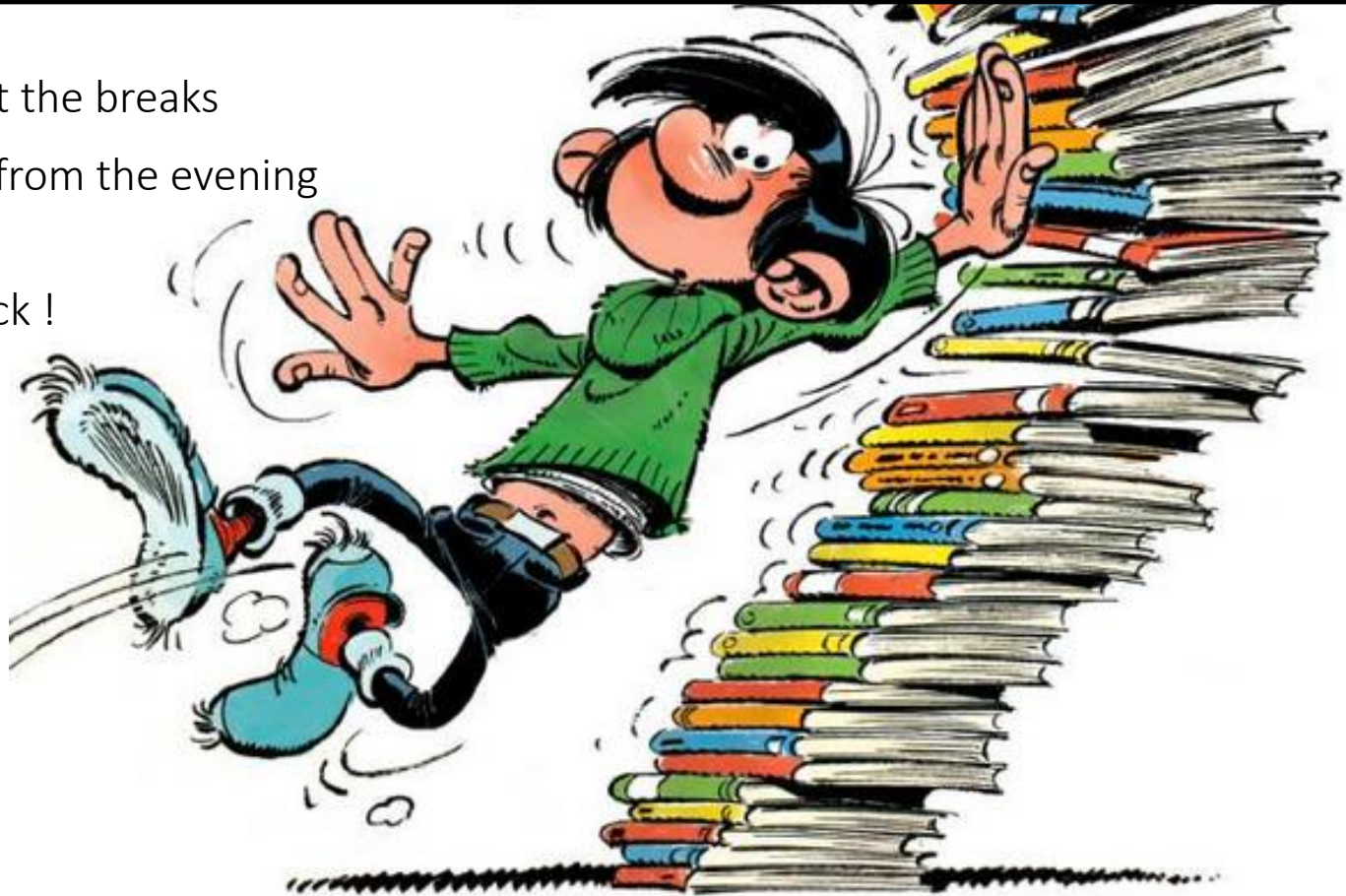
⇒ Post questions in the question box ahead of the session

⇒ Answers prepared by the lecturers



Library

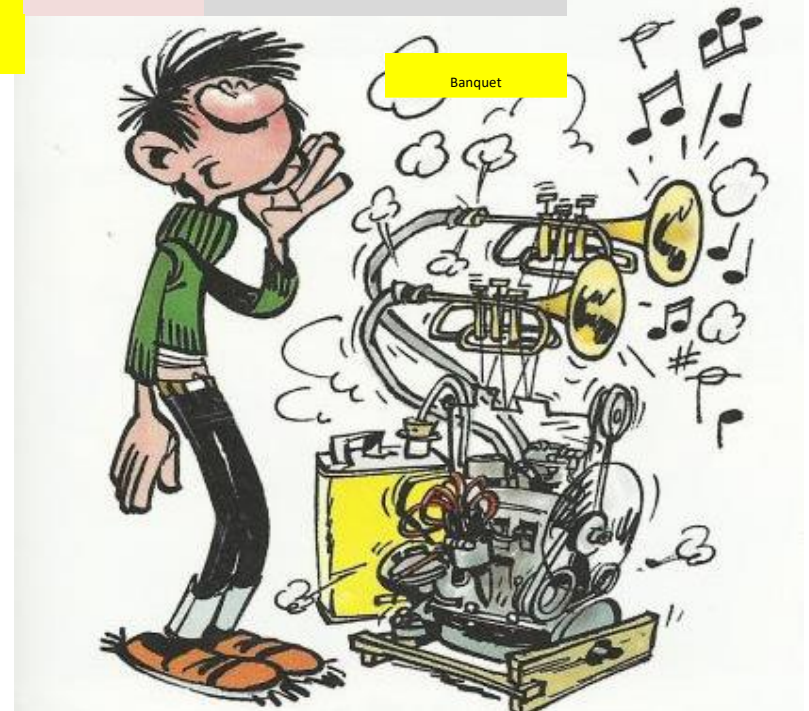
- ⇒ Browse books any time at the breaks
- ⇒ Books may be borrowed from the evening to the next morning
- ⇒ Please bring all books back !



Dancing party after the banquet

Tuesday 10/10/2017	Wednesday 11/10/2017	Thursday 12/10/2017	Friday 13/10/2017	Saturday 14/10/2017	Sunday 15/10/2017	Monday 16/10/2017	Tuesday 17/10/2017	Wednesday 18/10/2017	Thursday 19/10/2017	Friday 20/10/2017
Opening/Intro. Olivier Fruchart Tutorial Intro Coffee Field/Units/Magnetostatics Laurent Ranno	Magnetism of atoms 2/2 Wulf WulfHekel Coffee Questions	Ordering, Mean field 2/2 Wulf WulfHekel Coffee Practicals/Library Fruchart, Ranno, Isnard	Magnetic Interactions 2/2 Ingrid Mertig Coffee Symmetries, phase transition 2/2 Laurent Chapon	Transport part 2/2 Laurent Ranno Coffee Symmetries, phase transition 2/2 Laurent Chapon	Excursion's day	CEF, SOC, Anisotropy Julie Staunton Coffee Questions	Excitation/spinwaves part 2/2 Michel Kenzelmann Coffee Frustration part 2/2 Benjamin Canals	Topology and Magnetism Henrik Ønnow Coffee Magnetization processes 2/2 Christian Back	Frustration part 2/2 Benjamin Canals Coffee Domain Walls Andres Cano	Practicals/Library (Kenzelmann, Canals, Simonet) Coffee Skymions Chiral Structures Henrik Ønnow
Lunch	Lunch	Lunch	Lunch	Lunch		Lunch	Lunch	Lunch	Lunch	Lunch
Magnetism of atoms 2/2 Wulf WulfHekel clip/poster Coffee Techniques in Nano Olivier Fruchart	Ordering, Mean field 2/2 Wulf WulfHekel clip/poster Coffee Techniques in bulk Laurent Chapon	Sports afternoon	Transport part 2/2 Laurent Ranno clip/poster Coffee Questions	Magnetic Interactions 2/2 Ingrid Mertig clip/poster Coffee Practicals/Library (Fruchart, Ranno, Isnard)		Magnetization processes 1/2 Christian Back Coffee Poster Session	Multiferroics Andres Cano Coffee Practicals/Library (Kenzelmann, Millev, Simonet)	Questions Coffee Practicals/Library (Canals, Millev, Simonet)	career perspectives Instrumentation Gwilherm Vénert Coffee Excitation/spinwaves part 2/2 Michel Kenzelmann	career perspectives Publishing Yonko Millev Coffee Question, Evaluation, and losing Virginie Simonet
Welcome party										

- ➡ Should be self-organized
- ➡ Sound equipment available at IESC
- ➡ **Seeking a DJ volunteer to coordinate efforts**
- ➡ Other social activities discussed on later days



Stay in touch on Facebook

<https://www.facebook.com/groups/EuropeanSchoolOnMagnetism/>

<http://opn.to/a/QGCkb>

- ⇒ Organization updates
- ⇒ Outings & parties
- ⇒ Stay in touch after ESM



9h-10h	O. Fruchart <i>Opening / Introduction</i>	
10h-10h30	Tutorials intro	
10h30-11h	Coffee	
11h-12h30	Chair : O. Fruchart	L. Ranno <i>Field / Units / Magnetostatics</i>
12h30 - 13h30	Lunch	
13h30-14h		
14h-15h30	Chair : O. Isnard	W. Wufhekel <i>Magnetism of atoms and ions (1/2)</i>
15h30-16h	Poster clips	
16h-16h30	Coffee	
16h30-18h	Chair : O. Isnard	O. Fruchart <i>Techniques for Nano</i>
18h-19h30	Welcome party	