

# 2016 Japan & France joint workshop



## - Oxide electronics and spintronics seminar -

19<sup>th</sup> May

Venue: Université Pierre et Marie Curie (4 place Jussieu 75005 Paris)

20<sup>th</sup> May

Venue: CNRS/Thales, 1C50-52 (1 Avenue Augustin Fresnel, Palaiseau)

## - Interdisciplinary and integrated seminar -

21<sup>st</sup> May

Venue: Institut Pasteur (25 – 28 Rue du Dr Roux, 75015 Paris)

Host organization:

The Japan Society of Applied Physics (JSAP)

Frontier Research Group of 'Ferroic ordering and their manipulation'

Unité Mixte de Physique, CNRS, Thales

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Supporting organization: JSAP Tohoku Chapter, JSAP Spintronics group, The Meeting on Ferroelectric Materials and Their Applications

# Program

## – Oxide electronics and spintronics seminar –

### Morning coffee and refreshments 9:00

Opening 9:25 - 9:30 Hiroshi Naganuma (Tohoku University)

\* talks are invited

**19<sup>th</sup> May, 9:30-18:00, at tower during 23/24 room number 101**

Chair : Hiroshi Naganuma (Tohoku University)

- A1-01 9:30-10:10 [Opening remarks]  
-History and recent progress of Oxitronics group  
CNRS/Thales  
○ Agnes Barthelemy
- A1-02 10:10-10:40 \*Recent progress in spin caloritronics for energy conversion  
Tohoku University  
○ Masaki Mizuguchi
- A1-03 10:40-11:10 \*Recent progress of ferroelectric tunnel junctions  
CNRS/Thales  
○ Vincent Garcia and Stephane Fusil
- A1-04 11:10-11:40 \* Tuning spin order and spin excitations in multiferroic BiFeO<sub>3</sub> thin films  
CNRS/Thales  
○ Manuel Bibes

### Coffee break 11:40 – 11:45

Chair : Jun Kano (Okayama University)

- A1-04 11:45-12:15 \*Bulk-rhombohedral structure within thin film BiFeO<sub>3</sub> evidenced by transmission electron microscopy  
State University of NY, USA  
○ In-Tae Bae
- A1-05 12:15-12:45 \*Reconciling the ionic and covalent pictures in rare-earth nickelates  
CNRS/Thales  
○ Julien Varignon

### Lunch 12:45 - 14:00

Co-Chair : Masaki Mizuguchi (Tohoku University) and Taro Wakamura (Paris sud University)

- P1-01 14:00-14:30 \*Electric control of perpendicular exchange bias in Cr<sub>2</sub>O<sub>3</sub>/Co thin film system  
Tohoku University, Department of Electronic Engineering  
○ Tomohiro Nozaki, Muftah Al-Mahdawi, Satya Prakash Pati, Ye Shujun, Yohei Shiokawa, and Masashi Sahashi
- P1-02 14:30-14:45 Spin-charge conversion at non-magnetic metal/Bi<sub>2</sub>O<sub>3</sub> interface  
1. University of Tokyo, 2. RIKEN  
○ Shutaro Karube,<sup>1</sup> Kouta Kondou,<sup>2</sup> and YoshiChika Otani<sup>1,2</sup>
- P1-03 14:45-15:15 \*Influence of the target composition on the growth optimization of NdNiO<sub>3</sub> thin films  
CNRS/Thales  
○ Daniele Preziosi
- P1-04 15:15-15:30 Conductive Property of Junctions with Multiferroic BiFeO<sub>3</sub> ultrathin films  
Tohoku University  
○ Ichinose Tomohiro
- P1-05 15:30-15:45 Magnetotransport properties of metal/LaAlO<sub>3</sub>/SrTiO<sub>3</sub> heterostructure  
CNRS/Thales  
○ Diogo Vaz

- P1-06 15:45-16:15 \*Nanostructure in vertically aligned nanocomposite of Aurivillius-type Bi-layered compounds and spinel ferrites  
 Tohoku University  
 ○ Shingo Maruyama, Yuta Kawahira, Ryoma Harada, and Yuji Matsumoto

### Coffee break 16:15 – 16:30

Chair : Jun Okabayasi (The University of Tokyo)

- P2-01 16:30-16:45 Hybridization-controlled charge transfer and induced magnetism at correlated oxide interfaces  
 CNRS/Thales  
 ○ Mathieu Grisolia
- P2-02 16:45-17:00 Trirutiles as new potential Multiferroics  
 Laboratoire CRISMAT, ENSICAEN, UMR 6508 CNRS, France  
 ○ Matsubara Nami
- P2-03 17:00-17:30 \*Structure-chemistry-function relations of oxide interfaces investigated via high resolution electron microscopy  
 Centrale Supélec, Paris  
 ○ Pavan Nukala

### Dinner

**LA COUPOLE** (102 Boulevard du Montparnasse, Paris)

### 20<sup>th</sup> May, 9:30-16:20, CNRS/Thales, room number: 1C50 - 52

Chair : Hiroshi Naganuma (Tohoku University)

- A1-01 9:30-10:00 \*Spin transport and spin Hall effect in superconductors  
 Paris Sud University  
 ○ Wakamura Taro
- A2-02 10:00-10:30 \*Magnetic tunnel junctions using Fe<sub>3</sub>O<sub>4</sub> electrodes  
 Hokkaido University  
 ○ Nagahama Taro
- A2-03 10:30-11:00 \*Magnetic imaging of skyrmions: Effect of temperature, magnetic field and geometrical constraints  
 Forschungszentrum Jülich, Germany  
 ○ Andras Kovács

### Coffee break 11:00 – 11:15

Chair : Julien Varignon (CNRS/Thales)

- P1-01 11:15-11:45 \*First-principles study on the electronic and magnetic properties of BiFeO<sub>3</sub> and Bi(Fe,Co)O<sub>3</sub>  
 Tohoku University  
 ○ Tsujikawa Mastao
- P1-02 11:45-12:15 \*Controlling the ferroelectric switching path to get magnetization reversal  
 Luxembourg Institute of Science and Technology (LIST)  
 ○ Jorge Iniguez
- P1-03 12:15-12:45 \*Ferroelectricity and weak ferromagnetism of hexagonal ErFeO<sub>3</sub> thin film  
 Chiba University  
 ○ Yokota Hiroko

### Lunch 12:45 - 14:00

Chair : Vincent Garcia (CNRS/Thales)

- P2-01 14:00-14:30 \*Anomalous valance state and catalysis of metal nanoparticles supported on ferroelectrics  
 Okayama University  
 ○ Kano Jun

P2-02 14:30-15:00 \*Manipulation of Orbital Moments in Oxide Interfaces  
The University of Tokyo  
○ Jun Okabayasi

### Coffee break 15:00 – 15:15

Chair : Jorge Iniguez (Luxembourg Institute of Science and Technology)

P3-01 15:15-15:45 \*Ferromagnetism in BiFe<sub>1-x</sub>Co<sub>x</sub>O<sub>3</sub> thin films and the correlation between ferroelectric and ferromagnetic domains  
1Tokyo Institute of Technology, 2Nagoya Institute of Technology  
○ Hajime Hojo,<sup>1</sup> Ryo Kawabe,<sup>1</sup> Hajime Yamamoto,<sup>1</sup> Ko Mibu,<sup>2</sup> Masaki Azuma<sup>1</sup>

P3-02 15:45-16:15 \*Metastable Ferroelectric Thin Films  
Tokyo Institute of Technology  
○ Shintaro Yasui

Closing 16:15 - 16:20 Manuel Bibes (CNRS/Thales)

### Lab tour 16:30 – 18:00

\* 19:30 - 20:30 board meeting of ferroic-group.

## - Interdisciplinary and integrated lecture –

### 21<sup>th</sup> May, 10:00-16:10

Opening 9:55 - 10:00 Taro Wakamura (Paris Sud University)

Chair : Satoshi Kinugasa (Hopital Tenon)

A1-01 10:00-11:00 How to find the center of cell  
Institut Jacques Monod  
○ Hirokazu Tanimoto

A1-02 11:00-12:00 Chronic inflammation in non-communicable diseases  
Hopital Henri Mondor  
○ Daigo Sawaki

### Open discussion and lunch 12:00 - 14:00 Le Petite Bretagne (20 rue du Cotentin Paris)

Chair : Hiroshi Naganuma (Tohoku University, CNRS/Thales)

P1-01 14:00-15:00 A recipe for rings and moons  
Institut de Physique du Globe de Paris, France, Department of Planetology, Kobe University  
○ Ryuki Hyodo

P1-02 15:00-16:00 Ceramics in everyday life  
Tokyo Institute of Technology, Materials & Structures Laboratory  
○ Shintaro Yasui

Closing 16:00 - 16:10 Emi Murayama (Institut Pasteur)


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