July 5, 2016

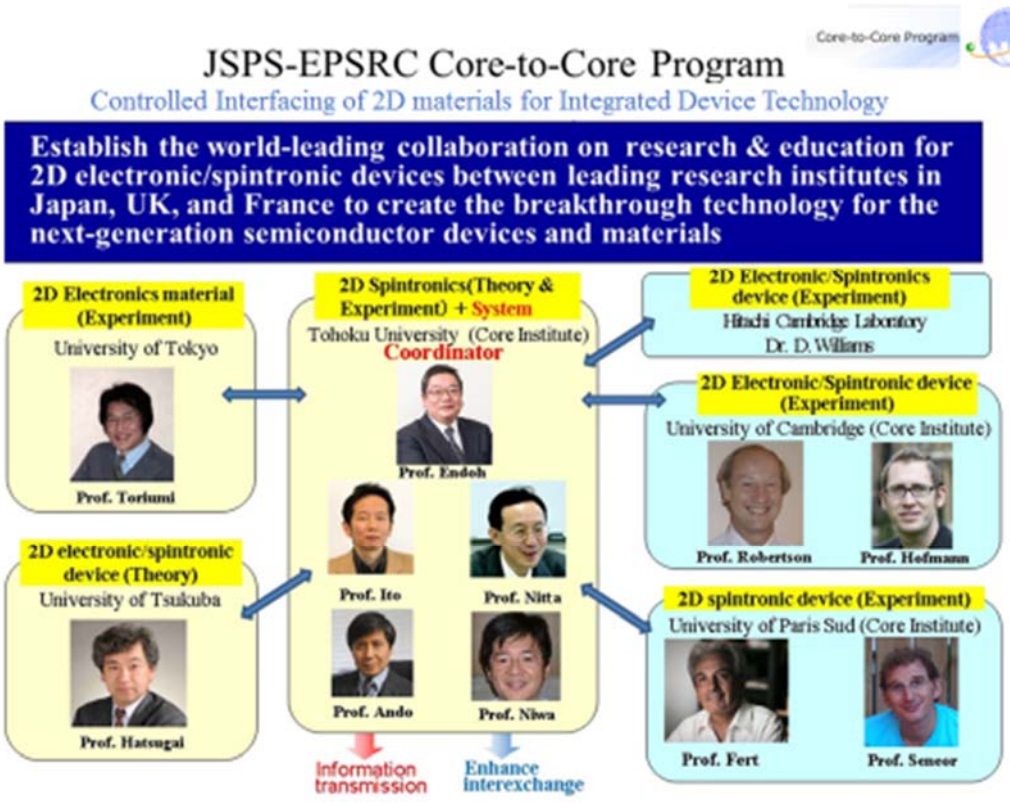
Center for Innovative Integrated Electronic Systems
Tohoku University

Kickoff seminar of the core-to-core program of the Japan Society for the Promotion of Science (JSPS) "Controlled Interfacing of 2D materials for Integrated Device Technology" (Coordinator : Prof. Tetsuo Endoh) will be held

The kickoff seminar of "Controlled Interfacing of 2D materials for Integrated Device Technology (Coordinator : Prof. Tetsuo Endoh, Director of Center for innovative Integrated Electronic Systems (CIES) at Tohoku University) adopted in the Core-to-core Program : A. Advanced Research Networks in 2016 FY which is supported by the Japan Society for the Promotion of Science (JSPS) will be held at University of Cambridge in UK on July 18th, 2016.

The organizations which participate in this program are CIES at Tohoku University (core institute in Japan: members are Prof. Tetsuo Endoh, Prof. Shoji Ikeda, Prof. Masaaki Niwa, Prof. Kenchi Ito et al.), Engineering Department at Tohoku University (members are Prof. Yasuo Ando, Prof. J. Nitta et al.). University of Tokyo (cooperating institute in Japan: members are Prof. Akira Triumi et al.), University of Tsukuba (cooperating institute in Japan: members are Prof. Yasuhiro Hatsugai et al.), University of Cambridge (core institute in UK: members are Prof. John Robertson et al.), CNRS/University of Paris Sud (core institute in France: members are Prof. Pierre Seneor, Albert Fert, Nobel Prize winner in 2007, et al.), and Hitachi Cambridge Laboratory (cooperating institute in UK, members are Dr. David Williams et al.)

The aim of this program is the development of the breakthrough technologies for the next-generation semiconductor integrated devices by the close collaboration among the world-leading research institutes in 2D electronic/spintronic material world. Moreover, with the collaboration among the above world-class research institute, this program also concentrates on fostering young researchers who develop the next generation semiconductor technologies.



Organization of JSPS-EPSRC core-to-core program
“Controlled Interfacing of 2D materials for Integrated Device Technology”

< Overview of Core-to-Core Program>

Since FY 2012, the Japan Society for the Promotion of Science (JSPS) has implemented a newly-revised Core-to-Core Program : A. Advanced Research Networks. This program is designed to create top world-class research centers that partner over the long term with other core research institutions around the world in advancing research in leading-edge fields on issues of high international priority. While advancing research in these fields and building core research, the Core-to-Core Program also concentrates on fostering the next generations of trailblazing young researchers.

Please see http://www.jsps.go.jp/english/e-c2c/index.html

<Overview of Controlled Interfacing of 2D materials for Integrated Device Technology>

The scaling of the information processing devices using electrons as an information carrier is approaching the physical limitation. The novel materials for opening the breakthrough semiconductor technologies and the integration technologies for manufacturing are strongly needed. The 2D materials such as graphene is expected as not only the new electron channel material which replaces the current MOS channel because of the ultra-high mobility, but also the transport channel material for spins as a new information carrier with ultra-low power consumption. However, since the integration technology to implement such 2D materials into integrated circuits has not been established yet, the application of 2D materials is limited in niche industrial fields.

CIES at Tohoku University has been leading the cutting edge technologies for the next generation semiconductor including the vertical body-channel type MOSFET and logic/memory circuit technology using spitronics devices. The main research objectives in this program are the development of manufacturing technologies with high-level repeatability for 2D electronic materials using CVD technologies, the development of high-quality 2D electron/spin channel with high quality interface between 2D materials and the electrodes/insulators, and theoretical/experimental investigation of 2D electron/spin transport in the channel, with the close collaboration among CIES at Tohoku University (core institute in Japan) Engineering Department at Tohoku University, University of Tokyo (cooperating institute in Japan), University of Tsukuba (cooperating institute in Japan), University of Cambridge (core institute in UK), CNRS/University of Paris Sud (core institute in France), and Hitachi Cambridge Laboratory (cooperating institute in UK). In addition to creating the breakthrough technologies for the next-generation semiconductor integrated devices, with the collaboration among the above world-class research institute, this program also concentrates on fostering young researchers who develop the next generation semiconductor technologies.

<Kick-Off Seminar: Two dimensional electronics/spintronics devices>

The kick-off seminar will be held in University of Cambridge on 18th of July, 2016, and the real activities of this program will start. Please see the following poster to show the details of the kick-off seminar

EPSRC-JSPS Core-to-Core Program (2016-2021)

"Controlled Interfacing of 2D materials for Integrated Device Technology"

Kick-Off Seminar Two dimensional electronics/spintronics devices

DATE **July 18**, 2016, 9:00~18:00 (GST)

VENUE William Gates Building
West Cambridge Site, Cambridge University
15 JJ Thomson Avenue, Cambridge CB3 0FD, UK

Program coordinators

Tetsuo Endoh (Tohoku Univ.)
John Robertson (Univ. of Cambridge)
Pierre Seneor (CNRS)


T. Endoh


J. Robertson


P. Seneor

Main program members

University of Cambridge	John Robertson, Stephan Hofmann, Henning Sirrighaus, Judith Driscoll
Hitachi Cambridge	David Williams, Joerg Wunderlich
CNRS/University of Paris Sud	Pierre Seneor, Albert Fert **<<< Novel Prize Winner in 2007**
Tohoku University	Tetsuo Endoh, Masaaki Niwa, Hiroshi Naganuma, Makoto Kohda, Masakazu Muraguchi, Kenchi Ito
University of Tokyo	Akira Toriumi, Kosuke Nagashio
Tsukuba University	Yasuhiro Hatsugai


A. Fert

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cnrs dépasser les frontières

Core-to-Core Program