

Project No.: 20003
Core Institution in Japan: The University of Tokyo

**JSPS Core-to-Core Program -Strategic Research Networks-
FY2010 Research Report**

Project No.	20003
Research Theme	Electronics and Photonics Convergence by Si Photonics
Duration of Project	2010/4/1-2013/3/31
Core Institution in Japan	The University of Tokyo

Implementing Organizations

Country	Japan
Core Institution	The University of Tokyo
Co-Chair (name and title)	Kazumi WADA・Professor
Number of Cooperating	6
Cooperating Institutions	Kyoto Univ., Yokohama National Univ., The University of Electro-Communications, Tohoku Univ., Okayama Univ.,University of Hyogo

Country	Belgium
Core Institution	Ghent University
Co-Chair (name and title)	Roel Baets・Professor
Number of Cooperating	8
Cooperating Institutions	University of Trento, University of Surrey, Max Planck Institute of Microstructure Physics , Universitat Stuttgart,Technische Universit ä t Wien,University of Roma,FOM,Université Paris-Sud
Matching Fund	European Commission,Flemish Government FP7,Methusalem

Country	U.S.A.
Core Institution	Massachusetts Institute of Technology
Co-Chair (name and title)	Lionel C. Kimerling・Professor
Number of Cooperating	8
Cooperating Institutions	Rochester University, Lehigh University, Cornell University, National Research Council Canada Institute of sciences of microstructures,Stanford University,UCLA,CALTEC,McMaster University
Matching Fund	National Science Foundation Computing and Communication Foundations

Country	
Core Institution	
Co-Chair (name and title)	
Number of Cooperating	
Cooperating Institutions	
Matching Fund	

Result of Program Implementation

The 3rd International Conference on Si photonics was separately held in Ghent Univ. and in MIT. The member of Japan core center visited to these two locations to have international conferences in a week of the end of January 2011. The attendees were about 44 (Ghent) and 26 (MIT) each. All the conference talks will be available at the website of Univ. of Tokyo.

Achievements in FY2010 (Self Review)

Collaboration between north America and Japan core centers went to quite well and triggered Ge lasing at room temperature. Collaboration between Europe and Japan core centers empowered foundry fabrication of Si photonic chips among Japan core centers and associated universities. The exchange of young students between north America and Japan, as well as between Europe and Japan were quite stimulated when the second term of the core to core program started. This year we sent students to these centers and related universities for short and long period. Typical example was half year stay at MIT as a visiting researcher which was not possible without MIT strong supports.

Future Plan (Measures toward Achieving Research Objectives)

We will continue and enhance the activities that we planned 2010, i.e., collaborative alliance of Si photonics among these corecenters in north America, Europe, and Japan to trigger the ultimate goal of Si photonics: light emitters integration on a chip. As has been reported above, our achievement of light emitter integration and university based foundry fabrication are getting one of the largest activities in Japan to prototype electronic and photonic convergence on a Si chip. The next target is to Ge laser integrated on Si waveguides. The core centers are planning to get it done by the end of the project.