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

JSPS Core-to-Core Program
-Strategic Research Networks-
FY2011 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	School of Engineering, The University of Tokyo

Implementing Organizations

Country	Japan
Core Institution	School of Engineering, 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 Universität 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

Collaboration between North America, Europe and Japan core centers enhanced 2nd generation of Si photonics focusing on light source integration on Si CMOS platform.
The First International Schooling on Si Photonics was held in the Katsura campus of the Kyoto University during November 16 to 19, 2011, cosponsored by Japan Society of Applied Physics, Materials Research Society, and IEEE, as well as PESEC.

Achievements in FY2011 (Self Review)

On chip light source has been intensively studied among the three Core Centers. Our progress strongly suggested that Ge lasers can be lased by electrical injection of Ge pn diodes.
The Schoolling program is to enhance human networking of young students among North America, Europe and Japan. It was four-day schooling consisting of Si photonics fundamentals, devices and materials, and applications. 10 cutting edge lecturers with 15 recitation instructors on Si photonics got together and 40 students from North America, Europe, and China as well as Japan. from IBM, Inatel, and Luxterra for the application end, Kyoto Univeristy, University of St Andrews, Ghent, University of Paris, MIT, Peking University, University of Electrocommunication for basics and devices/materials ends, Four day schooling was successful. See video at http://www.microphotonics.material.t.u-tokyo.ac.jp/LabHP/Microphotonics-U-Tokyo.html

Future Plan (Measures toward Achieving Research Objectives)

We will keep our framework of the JSPS core to core program to prototype the 2nd generation of Si photonics, i.e., on-chip light source and the network of young students participated in this program.