

Project No.:19001 Core Institution in Japan: Graduate School of Science, The University of Tokyo
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JSPS Core-to-Core Program -Strategic Research Networks-  
FY2009 Research Report

Project No.	19001
Research Theme	International Research Network for Dark Energy
Duration of Project	April 1, .2009 ~ March 31, 2012
Core Institution in Japan	Graduate School of Science,The University of Tokyo

Implementing Organizations

Country	Japan
Core Institution	Graduate School of Science, The University of Tokyo
Co-Chair (name and title)	Yasushi Suto (Professor)
Number of Cooperating Institutions	7
Cooperating Institutions	National Astronomical Observatory of Japan, Nagoya University, Tohoku University, Kyoto University, Hiroshima University, Institute for the Physics and Mathematics of the Universe, Institute for Cosmic Ray Research

Country	USA
Core Institution	Princeton University
Co-Chair (name and title)	Edwin Turner(Professor)
Number of Cooperating Institutions	3
Cooperating Institutions	California Institute of Technology, University of California, Fermi National Accelerator laboratory
Matching Fund	Princeton University · Astrophysical Research Fund, Princeton University · Charles Young Professorship Endowment, Princeton University · Foreign Research Travel Fund, Princeton University Council for International Teaching and Research · Global Collaborative Research Fund

Country	UK
Core Institution	The University of Edinburgh
Co-Chair (name and title)	John Peacock(Professor)
Number of Cooperating Institutions	3
Cooperating Institutions	Portsmouth University, University College London, Oxford University
Matching Fund	UK STFC (Science and Technology Facilities Council) · Astronomy Rolling Grant: Extragalactic Astronomy and Cosmology at Edinburgh

Country	France
Core Institution	Institute d'astrophysique de Paris

Co-Chair (name and title)	Jerome Martin(Senior Researcher)
Number of Cooperating Institutions	2
Cooperating Institutions	University 1 in Lyon, Centre de Recherche Astrophysique de Lyon
Matching Fund	CNRS(centre national de recherche scientifique) , ANR(agence nationale pour la recherche) · Cosmologie numerique : theories, modeles et observation

### Result of Program Implementation

Our program, DENET (International research network for dark energy research), continued to provide a variety of useful opportunities of international collaborations for young scientists and graduate students. Unfortunately the spectroscopic galaxy survey project between Gemini and Subaru observatories, WFMOS (Wide-field Fibre-fed Multi-Object spectrograph), which the coordinator of DENET, Yasushi Suto, has worked on for the last few years, was formally canceled in May 2009. Nevertheless a new project SUMIRE (SUbaru Measurement of Images and Redshifts of the universe) is now proposed and currently under serious discussion with several possible international partners including the DENET collaboration institutions (Princeton University and California Institute of Technology). The exchange and discussions based on the DENET activities for the last few years definitely made a significant contribution toward the successful start of SUMIRE..

### Achievements in FY2009 (Self Review)

The activities of DENET have ranged over several different aspects. We have organized

- i) an international conference entitled Joint Subaru-Gemini conference at Kyoto University (May 18-21),
- ii) an international conference entitled The Energetic Cosmos : from Suzaku to ASTRO-H at Otaru (June 29-July 2)
- iii) a summer school on Dark energy in the universe at Okinawa (August 31 - September 3),
- iv) a workshop entitled From cosmology to exoplanets at Gora (October 14-16)

and

- v) a Princeton-DENET conference entitled Science opportunities with Wide-Field Imaging and Spectroscopy of the Distant Universe at Princeton University (November 9-12).

In addition, DENET enabled many Japanese researchers, in particular graduate students, to participate in the workshops and to directly talk to and discuss with international experts in dark energy research. DENET also continued to promote several exchanges of young researchers and students among University of Portsmouth, Institut d'astrophysique de Paris, Princeton University, California Institute of Technology, University of California, which resulted in a number of collaboration papers.

## Future Plan (Measures toward Achieving Research Objectives)

DENET plans to actively promote the exchange of young scientists and graduate students among the participating institutions. The HSC project is supposed to submit a detailed survey plan over 5 years in middle 2011. Thus this year is a very important period to converge the apparently divergent opinions of the participants. For this purpose, DENET is expected to play a key role in many ways.

DENET plans to host several international conferences including “from massive galaxy formation to dark energy” in June at IPMU, University of Tokyo, a summer school on dark energy at Kochi in August/September, COSMO/CosPA2010 in September at University of Tokyo, and a dark energy conference at California Institute of Technology in October.

DENET also continues to send several students to stay for a few weeks at University of Portsmouth, IAP and Princeton University among others to complete on-going collaboration papers and also to start a variety of new projects.