

Project No.:19001 Core Institution in Japan:Graduate School of Science, The University of Tokyo

**JSPS Core-to-Core Program
-Strategic Research Networks-
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	4
Cooperating Institutions	California Institute of Technology, University of California, Fermi National Accelerator Laboratory, Lawrence Berkeley National 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

As a final year of the entire 5 years' program, we organized a summer school entitled "Dark energy in the universe" at Kumamoto in July, and a workshop on Hyper-Suprime Cam (HSC) at Princeton in August, and an international conference "Accelerating universe" at Institut de l'Astrophysique de Paris in October. In addition, we supported many young researchers and graduate students to attend conferences related to dark energy and also to visit and stay at the partner institutions, which provided great opportunities for them to talk to the leading scientists in a face-to-face manner. Also a special dark energy session was organized at the March general meeting of Japan Physical Society at Kwasei University, which presented several results emerging from the DENET activity in the last 5 years.

Achievements in FY2011 (Self Review)

The proposed plan in FY2011 was successfully completed. The imaging survey of distant galaxies with HSC is scheduled to be commissioned sometime in May 2012, and the spectroscopic survey with Prime Focus Spectrograph (PFS) is officially approved by Japanese optical user community, and is supposed to exchange MOU (Memorandum of Understanding) with major partner institutions. Both projects were triggered by the DENET activity in their initial phases, and are now successfully promoted and led by Hitoshi Murayama, director of Kavli IPMU.

The greatest news of DENET in FY2011 is that one of the collaboration members, Saul Perlmutter, was awarded Nobel Prize in Physics in 2011. The supernova cosmology is one of the major research projects in DENET and Saul has been collaborating with Mamoru Doi, PI of that project in DENET, for a long time.

Therefore I would conclude that DENET has made a significant achievement overall in FY2011.

Future Plan (Measures toward Achieving Research Objectives)

The original plan of DENET is basically completed, and as a result, dark energy research in Japan is now well recognized all over the world. In particular, a Japanese led international project, SuMIRe (Subaru Measurement of Images and Redshifts of the universe) started with DENET international partners as its major institutions, and will be an important database in cosmology in next 10 years. The role that DENET has played for last 5 years will be continued, and indeed advanced further by many young researchers who significantly benefitted by the DENET activities.