

FY2014

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

Project No.	23003
Research Theme	Forming research and educational hubs of medical physics
Duration of Project	Apr.1, 2013–Mar.31, 2016
Core Institution in Japan	Osaka University

Implementing Organizations

Country	Japan
Core Institution	Osaka University
Co-Chair (name and title)	Masahiko KOIZUMI, MD. PhD. Professor
Number of Cooperating Institutions	6
Cooperating Institutions	Osaka Medical Center for Cancer and Cardiovascular Diseases, Hyogo Ion Beam Medical Center, National Cerebral and Cardiovascular Center, University of Tokyo, Kyoto University, Juntendo University

Country	USA
Core Institution	Indiana University
Co-Chair (name and title)	Indra J. DAS, PhD. Professor
Number of Cooperating Institutions	2
Cooperating Institutions	Perdue University, University of Minnesota
Matching Fund	Fund of the department of Radiation Oncology or the IU Health Proton Therapy Center Research fund from Varian Medical Research

Country	Netherlands
Core Institution	University of Groningen
Co-Chair (name and title)	Sytze BRABDENBURG, PhD. Professor
Number of Cooperating Institutions	1
Cooperating Institutions	Paul Sherrer Institute]
Matching Fund	Fund of Groninngen University and the University Medical Center Groningen

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

Result of Program Implementation

Young researchers, medical physicists, medical doctors and students visited the partner institutions and cooperating ones for a minimum of three weeks and for a maximum of seven months, and carried out joint researches. Some research outcomes have been obtained, and presentations in domestic and international conferences have been done. Students visiting the University hospital also learned the know-how of clinical practice.

In July, University of Minnesota held "University of Minnesota, The University of Tokyo, Osaka University Scientific symposium". The participants reported the results of the collaborative researches and joint research projects were discussed. In August, University of Groningen held "Osaka, Indiana, Groningen symposium on Medical Physics". Discussions on the results of the collaborative researches and future collaborative research plans were done. In October, an International School on Medical Physics was held in Osaka University. The lecturer was the co-chair of Indiana University Prof. I. Das. Nine lectures had been done for two weeks, and covered wide range of medical physics.

Achievements in FY2013 (Self Review)

The young researcher, medical physicists, medical doctors and students were sent to the partner institutions to carry out the six research subjects; 1. Development of the next generation particle radiotherapy device, 2. Dose calculation for high-accuracy radiotherapy, 3. Development of the next generation diagnostic devices, 4. The research on the image-guided adaptive radiotherapy, 5. Development of cancer information system, 6. Research on particle beam radiation biology. The number of publications in the collaboration with Indiana University and University of Groningen were seven, and the number of the relevant publications were 20.

Future Plan (Measures toward Achieving Research Objectives)

The young researchers, medical physicists, medical doctors and graduate students will visit Indiana University, Minnesota University, University of California, University of Texas, University of Groningen and Karolinska Institute (Sweden), and carry out the collaborative researches to achieve outcomes. They will learn the clinical practice of medical physics and radiotherapy, and will feed back to the medical physics education and clinical practice.

We will have a heavy-particle therapy center in Osaka in few years, many medical physicists will be required. One of our goals is to nurture medical physicists having high-level international research ability.