明治大学外国人研究者招聘制度　報告書

＜招聘教授・研究員の情報 / Guest Professor・Guest Scholar＞

氏　名	Parasharam Maruti Shirage
Name	
所属機関（派遣元）	Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Indore
Affiliation (Home Organization)	
現在の職名	Professor
Position	
研究期間	May 4 to July 7, 2024
Period of Stay	
専攻	Science and Enginering
Field of Research	
ホスト教員氏名と所属学部研究科等	小椋　厚志（明治大学　理工学部　電気電子生命学科　教授）
Name of host teacher and affiliation at Meiji University	

＜外国人研究者からの報告 / Foreign Researcher Report＞

①研究課題　/　Research Theme

Research on innovative spectral downconverting nanomaterials for photovoltaic and photoelectric applications

②研究概要　/　Outline of Research

Research at Meiji University

We will develop the analysis methods of nanocrystals and nanocomposites provided by the Indian counterpart.

＊ Study on the structural, optical, electronic, and electrical properties of spectral downconverting nanocrystals,

1-dimensional semiconducting nanorods and nanowires, and their nanocomposites through the optical analysis such as UV-Vis-NIR and photoluminescence analysis etc., and the surface analysis such as AFM, XRD, XPS, Raman, and HRTEM analysis etc.

Research at Indian Institute of Technology

They will develop the synthetic methods of 0- or 2-dimensional spectral downconverting nanocrystals, 1-dimensional nanorods and nanowires, and their nanocomposites.

＊ Study on the fabrication of spectral downconverting 0- and 2-dimensional nanocrystals, 1-dimensional nanorods and nanowires, and their nanocomposites using explored spectral downconverting and transparent semiconducting nanomaterials.

③招聘期間中の研究活動の実績　/　The research results as Guest Professor・Guest Scholar

During his stay every Monday was booked for HRTEM, Tuesday for XPS and Wednesday for Raman. Thursday and Friday were reserved for data analysis and discussion. All the facility usage was great and helped for the proposed project materials characterization. June 13-16th, 2024 business trip to AIST Tsukuba for collaborative research work on materials synthesis at extreme conditions. In AIST Tsukuba the sample preparation of down and up conversion materials synthesis facility tour and some work was carried out. June 13 to 15th 2024, Professor Shirage, prepared samples which here characterized for XRD at AIST, HRTEM and XPS at Meiji University. On June 16th 2024, Prof. Shirage returned back to Meiji University Tokyo, Japan. From 17th June he started his daily casual as planned. On July 7th 2024 Professor Shirage returned to India. The trip is very successful and got many progressive results as planned in the DST-JSPS research proposal.