

The Institute for Materials Research (IMR) is dedicated to advancing the fundamental principles of materials science and engineering and to applying these principles to the development of practical materials. Through these efforts, IMR aims to contribute to the creation of diverse societal infrastructures from the standpoint of materials innovation. Among its key areas of focus, the development of functional materials using metallic and inorganic materials has long played a central role in driving societal innovation, and continued research in this area remains essential.

The development of next-generation functional materials must not only support a prosperous society but also address critical global challenges such as resource scarcity, energy demand, and environmental issues. To meet these challenges, IMR aspires to conduct research and development that integrate practical materials design and processing with fundamental scientific understanding. The concept of functional materials, here, is broad, encompassing traditional types such as hard and soft magnetic materials, semiconductors, and materials for energy devices like batteries and thermoelectric elements, etc. It also includes structural materials with advanced functionalities—such as biocompatibility, shape memory and superelasticity, high damping capacity, and environmental resistance—which are crucial for use in extreme environments, including the human body and outer space.

Therefore, this research division is expected to focus on the development of novel functional materials based on metallic and inorganic materials, the elucidation of their underlying functional mechanisms, the enhancement of their properties, and the expansion of their practical applications. As for collaboration with the Graduate School of Engineering, Department of Metallurgy, Materials Science and Materials Processing would be preferable.