

Institute of Physics of Materials CAS, v. v. i.

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Overview

The Institute of Physics of Materials concentrates its research on the physics of materials and material sciences with a focus on the behavior and properties of metallic and non-metallic materials in relation to their structure. The focus of activities of the department consists of basic research and promotion of the use of new knowledge in the application domain. The institute contributes to raising the level of knowledge and education and the use of research results in practice. It acquires, processes and disseminates scientific information, publishes journals, organizes scientific meetings and conferences, publishes anthologies, provides scientific assessments, opinions and recommendations, provides consulting and advisory services, and contributes to normalization and standardization in the field of materials physics and materials science. It offers postgraduate studies in doctoral programs and training of scientists, promotes international cooperation and organizes conferences and seminars. It performs its tasks both independently and in collaboration with universities and other institutions in the Czech Republic and abroad.

Organizational structure

The institute employs approximately 120 people, a third of them with scientific qualifications. It is divided into three scientific departments and one service department. The scientific departments (department of mechanical properties, department of structure and CEITEC IPM department) are further divided into workgroups.

Long-term conceptual development of the research organization

The goal of long-term conceptual development of the institute is to contribute to increasing knowledge of the relationship between the microstructure in the bulk and on the surfaces and interfaces on the one hand, and properties of materials on the other hand. New findings allow to optimize both the microstructure and properties, and on this basis to improve existing materials, or design completely new materials. Specifically, the research focuses on ultra-fine grain, microcrystalline, nanocrystalline and amorphous materials, intermetallics, monocrystals and polycrystals of superalloys, advanced steels, advanced

magnesium alloys, advanced iron-nickel alloys, shape-memory alloys, composite and nanocomposite materials, metallic laminates, lead-free solders, magnetic semiconductors and metalloid magnets, magnetic multilayers and silicides of transition metals. Studied relevant physical properties include mechanical properties (creep, fatigue, and brittle fracture) and selected electric and magnetic properties. The Central European Institute of Technology – CEITEC, in which the Institute is one of the partners, is an important project that integrates scientific research base in the region.

International cooperation

The Institute is involved in many international projects, including European, it regularly organizes international conferences and seminars. In 2010, it organized the Fatigue 2010 international congress.

Cooperation with universities

The Institute maintains an extensive and traditionally fruitful cooperation with universities in doctoral programs, master's, and bachelor's degrees. At the Brno University of Technology, CEITEC and together with the Masaryk University in Brno, the Institute has joint accreditations in the fields of doctoral programs. The Institute also collaborates on diploma theses of BUT and MU students.

Public services

Cooperation with businesses is based on grants, agreements and economic contracts. The volume of this cooperation is constantly growing.

