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PREFACE

The High-Energy Mechanics Division of the Research Institute for Applied Mechanics, comprising three research sections, Strength of Materials in High-Energy Range, Applied High-Energy Mechanics and High-Energy Fluid Mechanics, was organized during the period from 1966 through 1971. The purpose of the researches to be carried out in this division is to clarify the physical mechanism underlying various phenomena of mechanics in high-energy range, namely high temperature, high pressure, high speed, and so on, as well as to widen the possibility of applications into the new field of engineering sciences. On the other hand, equipments for experiments of high-energy mechanics were installed in 1964 available for common use in the research institute.

Since then, activities of the staff have been centered on fundamental studies concerning deformation and fracture of metallic and non-metallic materials having high melting points, effect of irradiation of high-energy particles upon materials and dynamics of ionized gases. On the basis of these researches, practical applications in the field of high-energy processings of engineering materials have been developed and useful results have been obtained.

In order to answer the urgent need, national and international, for exploitation of new energy sources, collaboration study started in the fundamental research toward nuclear fusion.

In the present special issue pertaining high-energy mechanics, are collected the review articles concerning results of researches made in this institute during the past ten years and the original papers by the staff giving the views on the future developments of their studies.

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