

Preface

In recent days, much demand for suppressing undesirable vibrations in machines, buildings, and so on is noticeable. For example, there are a variety of needs for suppression of noise from domestic machines such as sweepers, washing machines, refrigerators, air conditioners, etc., and also from transportation machines such as auto-bicycles, automobiles, trains, airplanes, etc. The suppression of vibration is important in our life not only for the comfort but also for the safety purposes. The importance is further expanding to newer fields such as audio-equipments, music instruments, fine machines, electronic devices, advanced measuring apparatuses such as STM and TEM, etc. When we consider such expanding needs for the suppression of vibration, the role of high damping materials (HDM) is becoming more and more important for human life, and for the development of science and engineering, for example, in such a field as nano-technology.

The sorts of materials connected with the high damping are also extending not only in metals and alloys but also in ceramics, polymers, glasses, and composite materials. For the present, HDM is named for the materials possessing a damping capacity higher than say 10% at a target condition. To use an appropriate material in an appropriate condition, it is important to know the mechanisms of the material damping through studying the dependences of the damping on the frequency and amplitude of vibration, and on environmental temperature and pressure.

The aim of our series of International Symposium on High Damping Materials is to develop new HDM, to clarify the mechanisms of the damping, and to search for the application fields of these materials in industries. The first HDM Symposium was held in 2002 in Tokyo as an activity of the project “Development of High Damping Materials”, which was a part of the project “The Research in Future Project” of Japan Society for the Promotion of Science (JSPS). The second one, HDM-2, was held for two days, 9th and 10th of September, 2005 at Kyoto Terrasa, Kyoto city, as a satellite symposium of the 14th International Conference on Internal Friction and Mechanical Spectroscopy (ICIFMS-14) which was held at the same place before HDM-2. In HDM-2 we had about 60 participants including 30 from 12 foreign countries. We had 40 presentations: 10 invited lectures, 11 oral presentations and 19 poster presentations. The discussions in there were very active and fruitful, and we were able to expand our knowledge on new materials, new mechanisms, and new applications. In all respects, the symposium was considered to be quite successful.

The symposium was organized by the 133-Committee, “Microstructure and Fundamental Properties of Materials”, Japan Society for the Promotion of Science. We much appreciate JSPS for its official and financial support. We also appreciate the Kajima Foundation, Ogasawara Foundation, and Suzuki Foundation for their financial supports. For the preparation and organization of the symposium, we are grateful to the secretary, Prof. T. Kosaka, and other members of the organizing committee for their contributions, which have resulted in the success of the symposium.

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