

## SPECIAL ISSUE ON CARBON-BASED THIN FILMS

### PREFACE



The main theme of this special issue is carbon-based thin films. Carbon materials attract considerable attention not only from scientists but also from industries, because carbon material comprises a variety of attractive substances from diamond to graphene and carbon nanotubes. The applications of carbon films cover machine elements, tools, optics, electronics, sensors, medical engineering, microsystem technology, electrochemistry, acoustics, decoration, and many more.

Diamond-like carbon (DLC) film is also a hot material. DLC consists of  $sp^3$  carbon bonds coexisting with the  $sp^2$  bonds of carbon atoms, and shows high hardness, high electrical resistance, and self-lubricant properties. DLC film is expected to be an excellent material for wear-resistant coatings. From the mechanical point of view, the reduction of energy consumption due to friction is an important issue.

Therefore, first I would like to introduce a review article focusing on superlubrication of amorphous carbon by Dr. Kano *et al.* in this special issue. I believe the readers will find novel aspects of tribological phenomena of tetrahedral amorphous carbon films through this article. Seven research papers are awaiting readers. Each research paper provides unique results focusing on different kinds of carbon thin films. In fact, five papers deal with amorphous carbon films and DLC films, one paper concerns graphitic film, and one paper deals with polymer film.

I would like to extend my heart-felt gratitude to all the authors for contributing excellent papers to this special issue. Thanks are also due to the reviewers who performed critical reviews on each paper. Finally, I wish to thank Ms. T. Tanabe and Ms. M. Sakano of MYU K. K. for their kind advice and assistance in the publication of this special issue.

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