

## SPECIAL ISSUE ON FILM AND MEMBRANE SCIENCES

### PREFACE



Films and membranes have enabled the growth and development of materials and sensors in various fields. Thin-film deposition techniques are key technologies for surface functionalization and are used in the fields of optical coatings, thin-film solar cells, thin-film fuel cells (solid oxide fuel cells), photoelectric devices, and piezoelectric elements. Films and membranes are contributing to the progress of innovative materials and sensors, which are further advancing medical and energy technologies. On the other hand, cellular membranes formed by amphiphilic molecules (mostly phospholipids) in the presence of water have attractive functions, such as ion-selective permeability, membrane liquidity, and fusion. Many researchers have designed cell-membrane mimics with these functions, leading to the development of materials and biosensors. This special issue focuses on materials and sensors based on film and membrane sciences.

This special issue contains seven papers categorized into those on thin-film-based sensors, analytical tools for thin-film characterization, liposome-based sensors, and intracellular transport techniques based on biomembrane permeability. I hope that the papers will provide useful information for guiding future research related to filter and membrane sciences including applications to sensors, interface design, and biofunctional analysis.

I would like to thank all authors, reviewers, and other people who have helped in the editorial process. Special thanks go to Ms. Misako Sakano for her invaluable help and the editorial board members for inviting me to edit this special issue.

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