"Following the first volume, Industrial Biomimetics, this book brings readers a new perspective on the biomimetic technologies crossing materials, fabrication, devices, ecosystems, and informatics."

Prof Hao Liu
Chiba University, Japan

"The authors of this wonderful book show the examples of learning the properties of living organisms and applying them to materials engineering and mechanical optics, as well as design proposals and informatics to solve current problems such as urban planning and the coexistence of agriculture and the environment."

Prof Takahiko Hariyama
Hamamatsu University School of Medicine, Japan

Biomimetics is based on nature, while technology is based on economy. One of the solutions for a sustainable society is to learn a grand design of technology from nature. Methods that mimic nature have a long history in various fields. Now is the time to use biomimetics as a starting technology design. Biomimetics is gaining a great deal of attention not only in materials and mechanical engineering but also in the ecosystem that comprises city planning, agriculture, and forestry. Informatics is being added to biomimetics to support its diversity and cross-disciplinarity.

This book will inspire the undergraduate and graduate students, researchers, and general readers who aim to develop technology for sustainability. Edited by Profs Akihiro Miyauchi and Masatsugu Shimomura, two prominent nanotechnology researchers, the book is their second volume on biomimetics. The first volume, *Industrial Biomimetics*, also published by Jenny Stanford Publishing, focused on the engineering aspect of biomimetics.

Akihiro Miyauchi is a professor at Tokyo Medical and Dental University, Japan. He received his BS in physics from Tokyo University of Science and master's and PhD from Tokyo Institute of Technology, Japan. He was a visiting scientist at the Microsystems Technology Laboratory of Massachusetts Institute of Technology, USA, and a chief researcher at Hitachi Ltd, where he developed a chemical vapor deposition (CVD) fabrication process for ultra-high speed bipolar transistors for optical communications, CMOS-LSI for computer processors, and CVD reactor simulators. He started nanofabrication using nanoimprint and developed nanoimprint machines, patterned media, optical devices, and cell culture tools. His interest is in functional surface design at the nano- and microscale. He has been a leader and a member of national projects and international committees on nanoimprint and biomimetics.

Masatsugu Shimomura graduated from Kyushu University, Japan, after which he worked as an assistant professor in the field of biomimetic chemistry in Prof Toyoki Kunitake's laboratory. He moved to the Tokyo University of Agriculture and Technology, Japan, as associate professor, where he researched polymeric Langmuir–Blodgett films. Then he moved to Hokkaido University, Japan, for starting a new laboratory to work on bottom-up nanotechnology based on self-organization and biomimetics. Concurrently, he held the post of principle investigator at RIKEN, Japan, where he developed self-organized honeycomb-patterned polymer films in collaboration with many industrial companies. After moving to Tohoku University, Japan, Prof Shimomura organized a national research project on engineering neobiomimetics and started an educational program on biomimetics at the Chitose Institute of Science and Technology, Japan. He has also worked with Prof Helmut Ringsdorf of the University of Mainz, Germany, and Prof Erich Sackmann of TU-Munich, Germany.

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