

Proteins from Renewable Resources: Materials Point of View

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Abstract

Proteins form the very basis of life. They regulate various activities in all known organisms, from replication of the genetic code to transporting oxygen, and are responsible for regulating the cellular machinery and determining the phenotype of an organism. From a material science point of view, proteins can serve as excellent building blocks for developing new structures, composites, and novel materials. In this talk, I will cover some of our efforts in this direction, demonstrating our bottom-up technology to form various new materials, including light-emitting devices, photothermal materials, smart-wound dressing, antibacterial coating, and more. The role of Jellyfish, an important renewable resource for many of our applications, will be discussed.

Short Bio

Prof. Shachar Richter (Ph.D. in Materials Science and Chemical Physics, Weizmann Institute of Science, Israel) is the head of the Bio and Molecular Electronics Lab and a faculty member at the Department of Materials Science and Engineering at Tel Aviv University. After graduation, Prof. Richter was a post-doctorate fellow and was later appointed as an independent staff member (MTS) at Bell Laboratories and Agere Systems (NJ, USA). In 2001 he joined Tel Aviv University, where he established the Nanoelectronics lab at the Centre for Nanoscience and Nanotechnology, where he serves as a core member. In 2003 he joined as a faculty member at the School of Chemistry, and in 2013 he moved to the Department of Materials Science and Engineering. In 2017 he was a sabbatical professor at Monash University (Australia), and In 2019 he won the "distinguished visiting scientist award" of The Commonwealth Scientific and Industrial Research Organization (CSIRO). His current research interests are jellyfish-based composites for medical and cosmetics applications, molecular and bioelectronics, bio-nano composites, and novel patterning technologies. Some of his patents are being commercialized by several startups companies which he co-founded.

