Prof. Yukihiro Shimogaki
Department of Materials Engineering,
The University of Tokyo, Japan

Education

1984 B.S., Department of Chemical Engineering, The University of Tokyo
1986 M.S., Department of Chemical Engineering, The University of Tokyo
1989 Graduated Department of Chemical Engineering, Ph.D. course, The University of Tokyo
1991 Ph.D., Department of Chemical Engineering, The University of Tokyo

Work Experience

1989-1990 Assistant Professor, Dept. of Chemical Engineering, The Univ. of Tokyo
1991-1997 Lecturer, Dept. of Chemical System Engineering, The Univ. of Tokyo
1997 Adjunct Professor, Dept. of Chemical Engineering, New Mexico State Univ., USA
1997 Associate Professor, Dept. of Chemical System Engineering, The Univ. of Tokyo
1998-2010 Associate Professor, Dept. of Materials Engineering, The Univ. of Tokyo
2011- Professor, Dept. of Materials Engineering, The Univ. of Tokyo
2014-2017 Department Head of Materials Engineering, The University of Tokyo
2017-2020 Special Adviser to the Dean, School of Engineering, The University of Tokyo
2020-2023 Vice-Dean, School of Engineering, The University of Tokyo
2023- Head of Collaborative Research Organization, Material Innovation Research Center, The University of Tokyo

Research Field and Activities

Professor Yukihiro Shimogaki has studied the synthesis of thin films by CVD (Chemical Vapor Deposition), exceptionally functional thin films for semiconductor integrated circuits. He has developed a method to experimentally analyze the reaction mechanisms and rates in the gas phase and on the surface. He has used quantum chemical calculations to deepen the understanding of elementary reaction mechanism and improve the processes. He has also synthesized compound semiconductor single crystal thin films such as GaAs and GaN and is developing research on optical integrated circuits using selective growth techniques. In recent years, he has also engaged in ALD (Atomic Layer Deposition) research, and his interests include the formation of highly reliable multilevel interconnects for ULSIs. He is also working on synthesizing various ceramic thin film materials, such as TiAlN coatings for cutting tool surfaces and SiC for ceramic-matrix composites.

He has been a representative of the CVD Reaction Subcommittee of the Society of Chemical Engineers of Japan since 2007. He has also served as the chair of the Executive Committee of ADMETA (Advanced Metallization Conference) in 2009 and the ALD International Conference in 2014.