

【Development and Controlling Materials' Surface Functionality by Laser Micro/Nano 3D Structuring】

Speaker : Prof. Lin Li

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Date & Time :Thursday, April 12, 2018, 10:00-11:30 (Open 9:50)

Venue :Keio University, Yagami Campus, room 12-210

Summary of Lecture : Materials interaction with the external media can be greatly affected by their surface micro/nano structures. This presentation introduces the author's recent work on the development and controlling of material surface functionalities by laser generation of 2D and 3D periodic structures and their interactions with surrounding media. These include the control of wettability of materials (e.g. super-hydrophobic and super-hydrophilic surfaces), control of optical properties of the surfaces including light absorption, scattering, emission and colours, control of aerodynamic properties of the surface, control of stiction force, and friction coefficients of the surfaces, control of surface properties for bonding and adhesion, control of bio-compatibility, and control of bacterial adhesion and dust adhesion of the surfaces. Nanosecond, picosecond and femtosecond lasers were used for these investigations. The applications of these special surface structures for data storage, security, medical implants, vacuum cleaners, light emission, solar energy harvesting, bone implants, coronary stents, dies and moulds, bonding and adhesion, and antibacterial surfaces are described.

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