



Advances in Antibacterial Nanomaterials and Surface

Guest Editor:

Prof. Dr. Elena Ivanova

School of Science, STEM College,
RMIT University, Melbourne, VIC
3000, Australia

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Message from the Guest Editor

The formation of bacterial biofilms has been prevented for many years through adapting the physical and chemical properties of a variety of medical tools, particularly the surfaces of instruments and implants. Recent studies of insect wings have shown that they are covered with nano-pillared arrays lethal to most species of pathogenic bacteria. Rather than relying on a combination of physical and chemical properties to combat biofilm formation, the mechanism of the antibacterial activity of nanostructured surfaces has been described in terms of purely physical, “mechano-bactericidal” effects.

The fabrication of synthetic antibacterial surfaces was first inspired by the anti-wetting and anti-biofouling properties of insect wings, and other topologies found in nature. Synthetic antibacterial, micro- and nano-structured, biomimetic surfaces fabricated on an array of different materials are the key in fighting non-pathogenic and pathogenic bacteria.





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Prof. Dr. Shirley Chiang

Department of Physics, University
of California Davis, One Shields
Avenue, Davis, CA 95616-5270,
USA

Message from the Editor-in-Chief

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MDPI, St. Alban-Anlage 66
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