

Colloquia

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Biomaterial based photonic devices

day

MAR 8, 2017 WED

location

SU-01

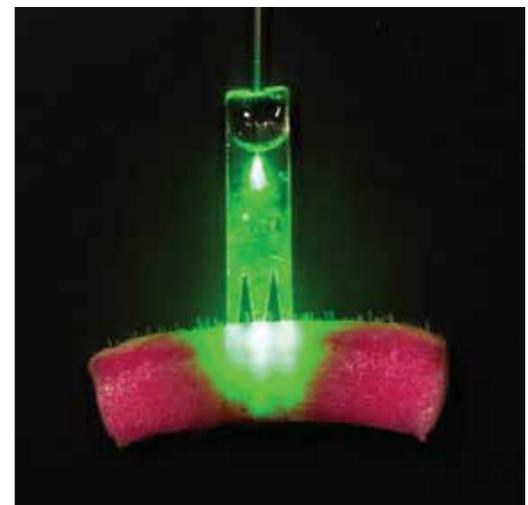
time

15:40

ABSTRACT

The depth of light penetration in tissue is still the fundamental limitation for all of the photomedical techniques. When penetrating through tissue from an external light source, light is quickly attenuated by scattering and absorption. Light delivery into the body of a patient or an animal is currently achieved via fiber-optic catheters or lens-based endoscopes that are made of materials such as glass or plastic, which are readily available, but generally not biocompatible. Such devices can only be used for bringing a light source close to the target tissue in the body and they must be removed from the body soon after use. Therefore, delivering the light further into the tissue has remained a challenge.

In this talk, I will present a new class of biomaterial-based photonic devices for therapy, surgery and light generation. I will discuss bioabsorbable waveguides for wound closure, biological cell lasers and protein integrated LEDs.



Sedat Nizamoglu received his B.Sc. degree in Electrical and Electronics Engineering (EEE) in 2005, M. Sc. degree in Physics as a Valedictorian in 2007 and his Ph.D. in EEE in 2011 at Bilkent University. Immediately after graduation, he continued as a research fellow with a joint affiliation with Harvard Medical School and Wellman Center for Photomedicine, Massachusetts General Hospital in USA. Before joining Koç University, he was a faculty member at Özyeđin University. His research focuses on the demonstration of innovative devices and interfaces for the applications to energy, medicine, and environment. He has published more than 40 research papers in prestigious journals including Nature Communication, Nature Photonics, Advanced Materials and Nano Letters. Recently he was recognized by MIT Technology Review as Innovator Under 35 Turkey, he received Outstanding Young Scientist Award by Turkish Academy of Sciences, and he was awarded an ERC Starting Grant.

The Physics Colloquia are designed to address a non-specialist, broad audience and introduce topics of contemporary research through lectures by leading experts. We warmly invite all members of the student body, including undergraduates enrolled in any programme.