



2023年11月10日

日本機械学会北海道支部 バイオメカニクス懇話会  
第46回講演会

(共催：日本機械学会北海道支部)

主査 大橋 俊朗

下記の要領にて第46回講演会を日本機械学会北海道支部特別講演会との共催として開催いたします。皆様のご参加をお待ちしております。

記

日時：2023年11月28日(火), 10:00~10:45

場所：北海道大学工学部 A1-17

講演：

「Light Responsive Polymeric Structures」

Assoc. Prof. Emiliano Descrovi

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**Abstract:**

Some opportunities of using light-responsive polymeric architectures in optics-related applications will be presented, including the biological domain. Several strategies will be shown, aiming at advancing the synthesis and fabrication technology for 2D/3D patterning of functional light-responsive polymers in the form of biocompatible resins, and elastomers exhibiting reversible mechanical variations (e.g. in morphology) when properly irradiated. In the context of biological applications, light-responsive smart substrates are introduced to perturb growth and migration of living cells. It is known that cell-substrate interactions modulate cell behavior and can induce significant phenotypic changes. Here, an operative platform for implementing a light-driven, real-time perturbation of small to medium sized cancer cell colonies seeded on light-responsive substrates is presented. On a larger scale, a new type of light-responsive nanocomposite is presented, whose mechanical deformation is fully driven by the polarization of an incident radiation. A millimeter-sized membrane actuator made of this amorphous material is demonstrated to be actuatable in any arbitrary direction, as ruled by the polarization state of the illumination.

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