

機械工学セミナー Mechanical Engineering Seminar

第10回 No. 10

主催：慶應義塾大学理工学部機械工学科
Department of Mechanical Engineering, Keio University

日時(Date):

2018年1月17日(水) (Jan. 17, 2018 (Wed.)) 10:45~11:45

場所(Venue):

セミナールーム2 (Seminar Room 2) (14-202)

講演題目(Title)

Extremely Stretchable and Fast Self-Healing Hydrogels

講演者(Speaker)

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Abstract:

Hydrogels are materials that consist of crosslinked polymer networks dispersed in water. While a number of promising properties, such as biocompatibility and environmental friendliness, responsiveness to external stimuli, adhesion, and biodegradability have been integrated into hydrogels, the relatively poor mechanical and self-healing property of hydrogels remain a challenge, impeding their use in real-world applications that require mechanical integrity. Here, we report that a hierarchical system of noncovalent crosslinks can lead to superior stretchability and damage recovery. This system of crosslinks allows the hydrogels to stretch up to 100 times their initial length and to completely self-heal within 30 s without external energy input.