



سمینار هفتگی ماده چگال نرم

Article Review:

“Adhesion of Chlamydomonas microalgae to surfaces is switchable by light”

[Link: https://www.nature.com/articles/nphys4258](https://www.nature.com/articles/nphys4258)

Abstract

Microalgae are photoactive microbes. Their photoactivity manifests itself in a variety of processes, including light-directed motility (phototaxis), the growth of microalgal populations, and their photosynthetic machinery. Although microbial responses to light have been widely recognized, any influence of light on cell–surface interactions remains elusive. The study found that the adhesion of algae to surfaces can be controlled by light. Experimenting with the green alga Chlamydomonas, researchers found that it consistently exhibited a strong adhesive force only under white light. They investigated the light response more closely Using a micropipette force spectroscopy technique and found that Chlamydomonas exclusively sticks to surfaces when exposed to blue light and alga uses a number of special light-sensitive proteins to sense the light. They measured in vivo single-cell adhesion forces and show that the microalga’s flagella provide light switchable adhesive contacts with the surface. This light-induced adhesion to surfaces is an active and completely reversible process that occurs on a timescale of seconds.

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مکان: اتاق ۵۱۲ دانشکده فیزیک دانشگاه صنعتی شریف - کلاس مجازی دکتر اجتهادی:

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