

THE MONOCRYSTALLINE PHOTORECEPTOR OF *EUGLENA GRACILIS* FROM A PHYSICISTS POINT OF VIEW

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The photoreceptive crystal in the green algae *E. gracilis* has directional sensitivity to incident light. Incident photons induce conformational changes in the algal rhodopsin single molecule, resulting in highly efficient energy conversion exceptionally little disturbed by thermal noise. The photocycle of this single photon detector is a simple two step process. This biomaterial with molecular precision is a promising candidate for biomimetic applications, e.g. in information technology. Emerging nanoelectromechanical systems (NEMS) might even use such a crystal as energy converter, simply by making use of ambient light. We characterize this biomaterial with confocal laser microscopy, scanning probe microscopy on the single molecule level and nanoscale force spectroscopy, thereby contributing to a sound basis for the correlation between structure and function of this amazing material.

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