Abstract Submitted
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Phototactic number-density flux in the localized bioconvection of Euglena gracilis ERIKA SHOJI, Hiroshima University, NOBUHIKO SUEMATSU, Meiji University, HIRAKU NISHIMORI, AKINORI AWAZU, SHUNSUKE IZUMI, MAKOTO IIMA, Hiroshima University — Euglena gracilis is a unicellular phototactic flagellate; it escapes from light sources if the light intensity is higher than 200W/m^2 (negative phototaxis). When the suspension of E.gracilis is illuminated from the bottom by strong light, bioconvection patterns are generated. In the case of E.gracilis, the patterns can be spatially localized. The localization mechanism has not been clarified. We report experimental results related to the localization mechanism. In particular, we experimentally measured the strength of the phototaxis in the lateral direction as well as vertical direction. We prepared a thin container in which the suspension is included, and gave the linearly-changing light intensity. We found the number density gets a peak at a particular light intensity, which never happens if the suspension has the vertical phototaxis only. Further, we succeeded in getting the function representing lateral phototaxis. The relationship between the measured functions and the localized convection cells will be also reported.

[1] Localized bioconvection patterns and their initial state dependency in Euglena suspensions in an annular container, E. Shoji, H. Nishimori, A. Awazu, S. Izumi, and M. Iima, J. Phys. Soc. Jpn. 83(2014)04300

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