2016年度 第2回 中央大学物理学科談話会

Department Colloquium of Physics, Chuo University

講演者：　Helmut R. Brand 氏（University of Bayreuth, Germany)

題　目：　On tetrahedratic order and chiral symmetry breaking

日　時：　２０１７年３月７日（火）１１：００～１２：３０

場　所：中央大学後楽園キャンパス３号館３階３３００号教室

（〒 112-8551　文京区春日１-１３-２７；東京メトロ丸の内線, 南北線「後楽園駅」,
または都営地下鉄大江戸線, 三田線「春日駅」から徒歩５分）

概　要：We investigate how tetrahedratic order can influence chirality in nonchiral systems. For nematic phases composed of achiral bent-core molecules the occurence of chiral domains of opposite hand is well-established experimentally [1,2] and has been modeled as being due to a linear gradient term between quadrupolar and octupolar order [3]. Recently there have been experimental results not only on liquid crystals, but also on optically isotropic phases. It turns out that in such materials mesoscopic to macroscopic domains of either hand can occur spontaneously [4]-[7]. We argue [8] that transient elasticity coupled to tetrahedratic order can lead to chiral domains of opposite hand in an optically isotropic system even for achiral molecules. This issue is related to the question of chiral symmetry breaking in condensed matter physics, but also potentially relevant for biological systems. This is the joint work with Harald Pleiner (MPI for Polymer Research, Mainz, Germany).

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