

21COE 物質階層融合科学セミナー
物性コロキウム

日時： 4月20日(木) 16:30 - 18:00

場所： 理学部 理学総合棟 745号室(大学院講義室1)

講師： Harald Pleiner (Max-Planck Institute for Polymer Research)

題目： Hydrodynamics of Non-Newtonian Flow

要旨： We combine the recently developed nonlinear hydrodynamic description of a viscoelastic fluid with a general 2-fluid hydrodynamics [1] of a 2-component and 2-momentum system to give a generalized-hydrodynamics model for various types of soft matter. The former ingredient is based either on a relaxing strain tensor description due to transient elasticity [2] or on transient orientational order [3], and covers the usual non-Newtonian effects, like shear thinning, strain hardening, stress overshoot, normal stress differences and non-exponential stress relaxation, while the latter deals with the relative velocity and its relaxation, the stress division between the two subsystems, the convective velocity problem and the anomalous concentration dynamics.

[1] H. Pleiner and J.L. Harden, in Nonlinear Problems of Continuum Mechanics, Special issue of Notices of Universities. South of Russia. Natural sciences, p.46 (2003) and cond-mat/0404134.

[2] H. Pleiner, M. Liu and H.R. Brand, Rheologica Acta 39, 560 (2000) and 43, 502 (2004).

[3] H. Pleiner, M. Liu and H.R. Brand, Rheologica Acta 43, 502 (2004) and IMA Volume in Mathematics and its Applications 141, 99.

連絡先： 内田就也 (795-7756)

16:15 よりコーヒー、紅茶、お菓子を用意します。

世話人： 岩井伸一郎 (795-6423) 中島龍也 (795-6441)
松井広志 (795-6604) 内田就也 (795-7756)