Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Crystallization of linear polyethylene in nanoporous cylindrical pores[1] KYUSOON SHIN, EUNTAEK WOO, JUNE HUH, Seoul National University, YOUNG-GYU JEONG, Kumoh National Institute of Technology — The linear polyethylene with nearly monodisperse molecular weight distribution is confined in cylindrical nanopores, and the crystallization behavior of the polyethylene is investigated. The crystalline structure and crystallization kinetics of the linear polyethylene in the cylindrical nanopores, examined by x-ray diffraction and calorimetry, shows noticeable deviations from those of bulk polyethylene. We find the imposed confinement induces significant frustration which enables us to control the crystal structure formation such as crystal orientation. The detailed crystallization kinetics of polyethylene in the cylindrical nanopores together with the crystal structure will be discussed.

[1]The authors appreciate the support by the Korea Research Foundation. (KRF-2006-331-D00160)

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Date submitted: 17 Nov 2006 Electronic form version 1.4