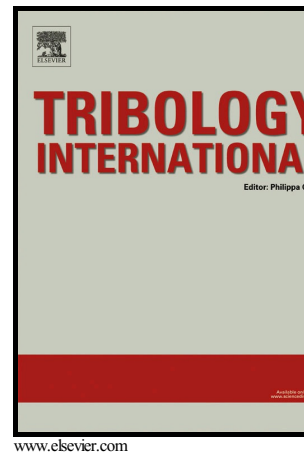


## Author's Accepted Manuscript

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Shear thinning behavior of nanometer-thick perfluoropolyether films confined between corrugated solid surfaces: a coarse-grained molecular dynamics study

Hedong Zhang<sup>\*1</sup>, Motoo Fukuda<sup>2</sup>, Hitoshi Washizu<sup>3</sup>, Tomoyuki Kinjo<sup>3</sup>, Hiroaki Yoshida<sup>3</sup>, Kenji Fukuzawa<sup>2</sup>, Shintaro Itoh<sup>2</sup>

<sup>1</sup>Department of Complex Systems Science, Graduate School of Information Science, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan

<sup>2</sup>Department of Micro-Nano Systems Engineering, Graduate School of Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8603, Japan

<sup>3</sup>Toyota Central R&D Labs., Inc., 41-1 Yokomichi, Nagakute, Aichi 480-1118, Japan

\*Corresponding author. *E-mail address*: zhang@is.nagoya-u.ac.jp

Abstract: Using a coarse-grained model that accurately reproduces the structures and pressures of the parent all-atom simulations, we performed molecular dynamics simulations to gain insight into the high-speed shear behavior of nanometer-thick perfluoropolyether (PFPE) films confined between two corrugated solid surfaces. The PFPE films exhibit shear thinning behavior (i.e., decrease of viscosity with increasing shear rate) following a power law. The degree of shear thinning (i.e., the exponent of the power law) is largely determined by the degree of geometric confinement rather than layering and molecular orientation of the confined films. Severe geometric confinement at a small solid–solid spacing gives a large degree of shear thinning.

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