Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Preparation of a series of model poly(n-alkyl styrene)s and their viscoelasticity and glass transition temperatures SATORU MATSUSHIMA, ATSUSHI TAKANO, Department of applied chemistry, Graduate School of Engineering, Nagoya University, YOSHIAKI TAKAHASHI, Institute for Materials Chemistry and Engineering, Kyushu University, YUSHU MATSUSHITA, Department of applied chemistry, Graduate School of Engineering, Nagoya University — Viscoelasticity and glass transition temperatures for linear polymers of many species have been investigated so far, and it is well-known that the melt viscosity for the linear polymers varies with molecular weight in essentially the same manner such as packing length theory. It is important to understand the relationship between the viscosity and the molecular structure of various kinds of linear polymers. To investigate the relationship deeply, viscoelastic measurements using linear polymer analogues which the molecular structure is systematically varied should be useful. For example, poly(n-alkyl-substituted polymers) such as poly(n-alkyl methacrylate)s are one of the good candidate. In this study, a series of poly(*n*-alkyl styrene)s with the different number of carbon atoms(n) in the side alkyl groups (n=1, 2, 3, 4, 6, 8, 10 and 12) were carefully synthesized by an anionic polymerization technique, and the viscoelasticity and the glass transition temperatures of the poly(*n*-alkyl styrene)s with high molecular weight (Mw$\geq$4Me) and narrow molecular weight distribution (Mw/Mn$\leq$1.1) were discussed.

Satoru Matsushima
Department of applied chemistry, Graduate School of Engineering, Nagoya University

Date submitted: 06 Nov 2015 Electronic form version 1.4