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Title	Prediction of electro-rheological effect of binaly polymer blends.
Researchers	Takashi Taniguchi
Purpose of this study	Prediction of morphologies of the domain structure and rheological properties of binary polymer blends under shear flows and external electric fields.
System (Material)	Homopolymer blend system (target : DMS/UPPG)
Program (including analysis)	MUFFIN ver 1.0 Visualization, graph of stress-time functions.
Method & Some important input parameters	(Method) Simulator for Dielectric binary fluid 1. Navier stokes equation 2. Maxwell equation 3. Cahn-Hillard equation including hydrodynamic effect (Inputs) 　Shear Rate, dielectric 　constant and viscosity for each component, 　χ parameter, segment lengths, 　strength of the imposed electric field
Advance & Problem	(Advance) (Problem)
References	[Manuscript] [Presentation at conferences (Meetings)] The 3rd Tohwa University International Confference on Statistical Physics (Tohwa StatPhys ’99 Nov, 8-12) The 47th Rheological Society of Japan Meeting (1999.10) Meeting of ER-study group(at Yamagata Univ. 1999.10)
KeyWords (in English)	Rheology, Electro-rheological effect, dielectric constant, polymer blend, Electric field, shear flow, oscillatory flow, Cahn-Hillard equation, Maxwell stress, Maxwell equation.

Results (Remarks)

Output:

Time development of shear stress for various electric field strength.
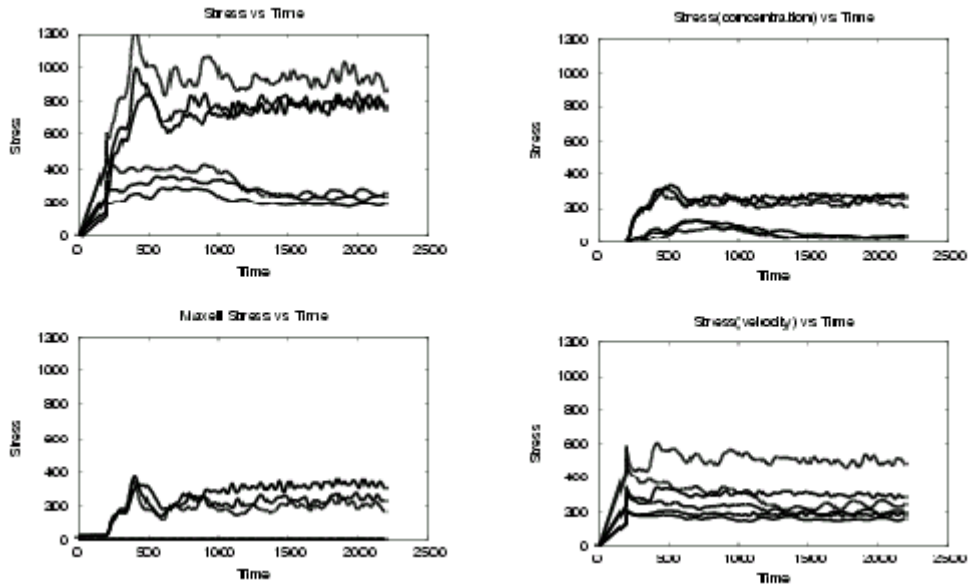
Figures: Total stress versus time (top left) ,
Stress coming from surface tension of doman boundaies (top right),

Maxwell stress (bottom left) and Newtonian stress (bottom right).