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Self-consistent Mixing Rule for the Viscoleasticity of Heterogeneous Systems FRANCOIS LEQUEUX, ESPCI/SIMM Paris France, PEILUO SHI, HELENE MONTES, None — Heterogeneous systems –like glasses mixtures - can exhibit huge local fluctuations of their viscoelastic modulus. The average viscoelastic modulus is often approximated either as the average modulus, or as the inverse of the average of the inverse of the modulus. Here we test a self-consistent method based on the Olroyd Palierne model for blend viscoelasticity [1]. We test this method on polymer miscible blends, with a very different glass transition temperature. We first deduce from Differential Scanning Calorimetric measurements the distribution of glass transition and thus of local viscoelastic modulus. From that we predict quantitatively the viscoelastic modulus of the polymer blends. It appears thus that the self-consistent averaging for disordered systems is extremely efficient, describing quantitatively systems where the modulus varies locally by at least 3 decades. [1] F. Lequeux, A. Ajdari,"*Averaging rheological quantities in descriptions of soft glassy materials*" Phys. Rev E 63 R030502 (2001)

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None

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