

Transient grating experiments in a supercooled molecular liquid of anisotropic molecules: theory and experiments

DREYFUS C.¹, PICK R.M.¹, AZZIMANI A.¹, TASCIN A.^{2,3}, TORRE R.^{2,3},
RICCI M.^{2,4}, SAMPOLI M.^{3,5}

¹ PMC, UMR 7602, B.P. 77, Univ. P. et M. Curie, 4 Place Jussieu, F-75005, Paris, France

² LENS and Dip. di Fisica, Univ. di Firenze, largo E. Fermi 2, 50125 Firenze, Italy

³ INFM, Unità di Firenze, largo E. Fermi 2, 50125 Firenze, Italy

⁴ Dip. di Chimica Fisica, Univ. della Basilicata and INFM, Unità di Napoli, Italy

⁵ Dip. di Energetica, Univ. di Firenze, via S. Marta, Firenze, Italy

A theoretical description of transient grating in a supercooled molecular liquid of anisotropic molecules is given. The results of a Transient Grating experiment in such a case are presented. These results show the existence of two distinct dynamical contributions in the response function of this experiment, density and orientation dynamics. These dynamics can be experimentally disentangled by varying the polarisation of the probe and diffracted beams and they have been identified and measured in a Heterodyne Detected experiment performed on *m*-toluidine. The first results of the analysis are also described.