

Orientational order-magnetization coupling in mixtures of the magnetic nanoparticles and the ferroelectric liquid crystal

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A dielectric spectroscopy, magnetic susceptibility, and high-resolution calorimetry have been carried out in the vicinity of the ferroelectric smectic C* phase of SCE9 ferroelectric liquid crystal mixtures with magnetic nanoparticles. The impact of the magnetic nanoparticles on the Goldstone and soft mode dielectric response has been determined by the dielectric spectroscopy measurements. The possible indirect coupling between the magnetic moments and the electrical polarization has been verified by measuring the impact of the electrical field on the magnetic susceptibility via SQUID susceptometer measurements. The disordering effects on the ferroelectric phase transition have been studied by the high resolution calorimetry. Similar disordering effects have been found as in the case of the aerosil particles (1-2).

References

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