1. Record Nr. UNINA9910254047603321

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Titolo	A First Example of a Lyotropic Smectic C Analog Phase : Design, Properties and Chirality Effects / / by Johanna. R Bruckner
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-27203-9
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (130 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	530.429
Soggetti	Physical chemistry Amorphous substances Complex fluids Analytical chemistry Crystallography Physical Chemistry Soft and Granular Matter, Complex Fluids and Microfluidics Analytical Chemistry Crystallography and Scattering Methods
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral Thesis accepted by the University of Stuttgart, Stuttgart, Germany."
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Introduction -- Aims and scope of this thesis -- Thermotropic and lyotropic liquid crystals -- Materials and experimental techniques -- Results and discussion -- Summary -- References -- Appendix A -- Appendix B.
Sommario/riassunto	In this thesis Johanna Bruckner reports the discovery of the lyotropic counterpart of the thermotropic SmC* phase, which has become famous as the only spontaneously polarized, ferroelectric fluid in nature. By means of polarizing optical microscopy, X-ray diffraction and electro-optic experiments she firmly establishes aspects of the structure of the novel lyotropic liquid crystalline phase and elucidates its fascinating properties, among them a pronounced polar electro-optic effect, analogous to the ferroelectric switching of its thermotropic

counterpart. The helical ground state of the mesophase raises the fundamental question of how chiral interactions are "communicated" across layers of more or less disordered and achiral solvent molecules which are located between adjacent bi-layers of the chiral amphiphile molecules. This thesis bridges an important gap between thermotropic and lyotropic liquid crystals and pioneers a new field of liquid crystal research.