



	Experiment title: Field-induced effects on the mesomorphic behavior of nematogenic bent-core mesogens	Experiment number: 16-02-96
Beamline: BM16	Date of experiment: from: 13 July 2011 to: 19 July 2011	Date of report: 27 February 2014
Shifts: 12	Local contact(s): Francois Fauth	<i>Received at ESRF:</i>
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Report:

The experimental results have been published in the paper

O. Francescangeli, F. Vita, F. Fauth, E. T. Samulski, “Extraordinary Magnetic Field Effect in Bent-Core Liquid Crystals”, *Phys. Rev. Lett.* **107**, 207801 (2011),

whose abstract is reported below

A bent-core mesogen that forms a cybotactic nematic phase exhibits a giant magnetic field-induced shift of its nematic-isotropic and smectic-C–nematic transition temperatures: $\Delta T(H) = 4\text{ K}$ for $H = 10\text{ kOe}$. In contrast with molecular nematics, in cybotactic nematics the field couples with the anisotropic susceptibility of clusters containing several hundred partially ordered molecules. X-ray diffraction data corroborate a quantitative estimate of inferred cluster size (~ 300 molecules). The results represent an unequivocal demonstration of the cluster picture of the nematic phase of this class of nonlinear liquid crystals.