

Clustomesogen Showing Sub-Zero Liquid Crystal Properties: Supramolecular Assembly between $\text{Cs}_2[\text{Mo}_6\text{I}_8(\text{OCOC}_2\text{F}_5)_6]$ and Hexaethylenoxide Containing Mesogenic Dimers

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One goal in designing emissive liquid crystalline materials is to achieve calamitic mesomorphism below room temperature.^[1,2] The presented hybrid materials, so-called clustomesogens, consisting of phosphorescent Mo-cluster **1** and hexaethylenoxide-based LC ligands **LCn** with varying chain lengths combine both properties.^[3] Mesomorphism was characterized by POM, DSC and XRD. POM investigations revealed smectic textures for the pure **LCn**, whereas adding **1** led to uncharacteristic textures. DSC traces for pure ligands showed reproducibility and monotropic behavior, while the hybrids formed reproducible enantiotropic mesophases with overall lowered transition temperatures, all below 0 °C. XRD experiments for the hybrid **1+4LC9** showed a phase with an intermolecular distance increased by 4.4 Å in comparison to the pure **LC9** while preserving SmA phase geometry. This harmonizes with our understanding of intermolecular arrangement in the mesophase.^[3]

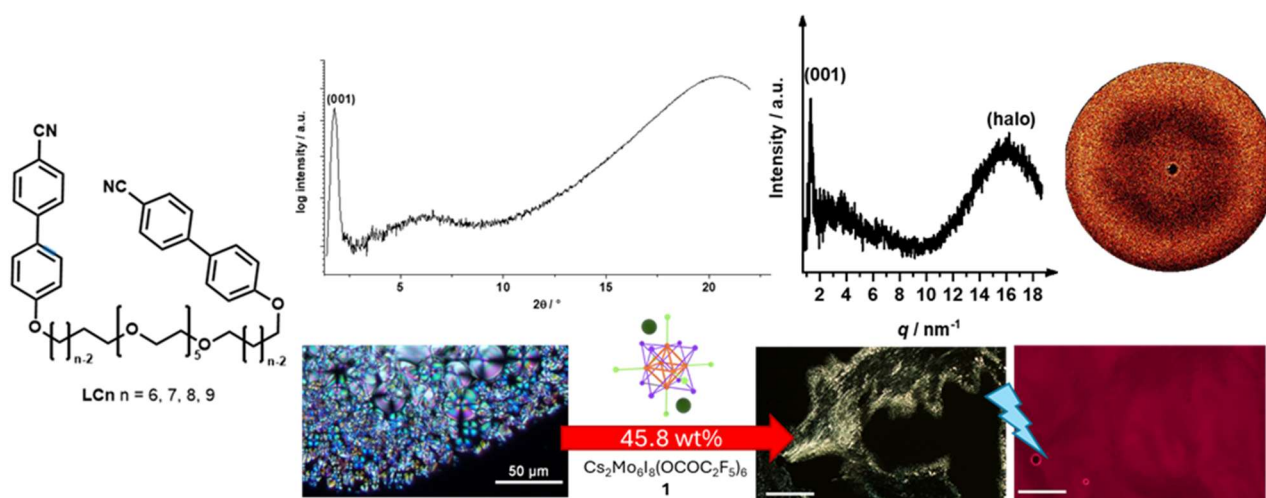


Figure 1. **LCn** and LC behavior of pure ligand **LC9** (left) and clustomesogen **1+4LC9** (right).

References

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