

Interactions of micro-rods in thin nematic layers

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We present an experimental analysis of topological properties of a nematic liquid crystal in the vicinity of small cylindrical objects (micro-rods), confined to thin nematic layers. Depending on the type of liquid crystal anchoring on the surfaces of the micro-rods, we have observed two types of the symmetry: dipolar and quadrupolar. Using the manipulation of micro-rods with laser tweezers, the strength and separation dependencies of various pair interaction potentials have been determined. Our results are in qualitative agreement with previous theoretical predictions for 2D interactions of micro-rods in the nematic liquid crystal and present their first experimental verification.

References

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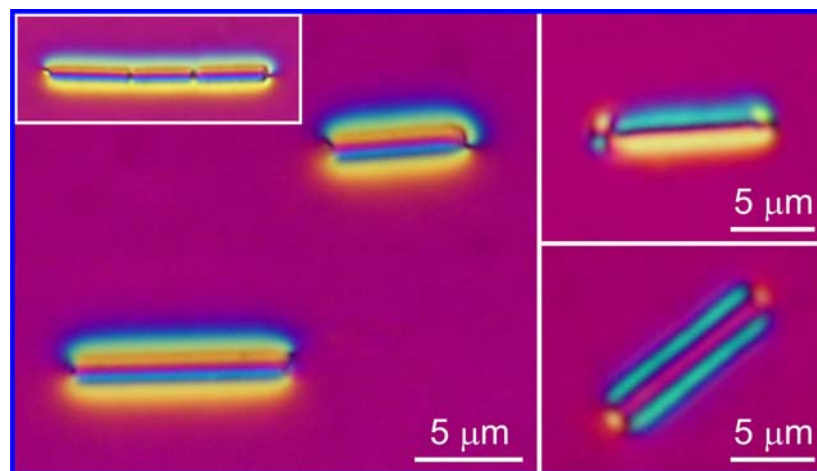


Figure: Micro-rods confined to thin nematic layers.