

**Title:** The nature of the ordered phase of the confined self-assembled rigid rod model

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**Abstract:** We investigate the nature of the ordered phase and the orientational correlations between adjacent layers of the confined three-dimensional self-assembled rigid rod model, on the cubic lattice. We find that the ordered phase at finite temperatures becomes uniaxial in the thermodynamic limit, by contrast to the ground state (partial) order where the orientation of the uncorrelated layers is perpendicular to one of the three lattice directions. The increase of the orientational correlation between layers as the number of layers increases suggests that the unconfined model may also exhibit uniaxial ordering at finite temperatures. (C) 2012 American Institute of Physics. [<http://dx.doi.org/10.1063/1.4745196>]

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