

**Santangelo, Christian D.; Vitelli, Vincenzo; Kamien, Randall D.; Nelson, David R.**  
**Geometric theory of columnar phases on curved substrates.** (English) Zbl 1228.82086  
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Summary: We study thin self-assembled columns constrained to lie on a curved, rigid substrate. The curvature presents no local obstruction to equally spaced columns in contrast with curved crystals for which the crystalline bonds are frustrated. Instead, the vanishing compressional strain of the columns implies that their normals lie on geodesics which converge (diverge) in regions of positive (negative) Gaussian curvature, in analogy to the focusing of light rays by a lens. We show that the out of plane bending of the cylinders acts as an effective ordering field.

**MSC:**

**82D25** Statistical mechanical studies of crystals

Cited in 5 Documents

**Full Text:** [DOI](#)

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