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Michael Novack* (michael.novack@austin.utexas.edu) and **Xiaodong Yan**. *3D Smectic Liquid Crystals: A Sharp Lower Bound and Connection to Aviles-Giga*.

We will examine the variational theory for smectic liquid crystals, which are a type of liquid crystal in which the molecules are arranged in layers. The 3D smectic model contains as a special case the well-studied 2D Aviles-Giga model. The talk will focus on the consequences of this connection, which include a sharp lower bound on the 3D energy that was not known in the physics literature. This is joint work with Xiaodong Yan (UConn). (Received August 12, 2021)