

## **Shape Evolution Problems in Liquid Crystals**

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Boundaries are an essential mechanism to control liquid crystalline order: they may promote a local orientation or order and, globally, can enforce topological constraints that promote or inhibit defect formation. In many emerging applications, the boundary of the system is not fixed and stationary states of the system must be determined by extremizing the free energy both with respect to the order and the overall shape of the system. In this talk, I will present recent progress made by my group in solving this extremely challenging class of problems with examples from liquid crystals.