Dynamics and Instabilities of Defects in Curved Two-Dimensional Crystals[1] MARK BOWICK, HOMIN SHIN, Syracuse University, ALEX TRAVESSET, Iowa State University and Ames Lab. — Point defects play a fundamental role in determining the thermodynamic, elastic and mechanical properties of two-dimensional crystals. When such crystals are curved, finite length grain boundaries (scars) appear as basic structural features. We discuss an analytical determination of the elastic spring constants of dislocations bound within scars and compare them with existing experimental measurements from optical microscopy. We further show that vacancies and interstitials, which are stable defects in flat crystals, are generally unstable in curved geometries.

Mark Bowick
Syracuse University

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