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*Imaginary Geometry and the Gaussian Free Field*

The Schramm-Loewner evolution (SLE) is the canonical model of a non-crossing conformally invariant random curve, introduced by Oded Schramm in 1999 as a candidate for the scaling limit of loop erased random walk and the interfaces in critical percolation. The development of SLE has been one of the most exciting areas in probability theory over the last decade because Schramm's curves have now been shown to arise as the scaling limit of the interfaces of a number of different discrete models from statistical physics. In this talk, I will describe how SLE curves can be realized as the flow lines of a random vector field generated by the Gaussian free field, the two-time-dimensional analog of Brownian motion, and how this perspective can be used to study the sample path behavior of SLE. Based on joint works with Scott Sheffield.