1167-57-51 **Didac Martinez Granado*** (`dmartinezgranado@ucdavis.edu`), One Shields Ave, Davis, CA 95616, and **Dylan Thurston**. *Geodesic currents and the smoothing property.*

Geodesic currents are the closure of the space of closed curves on a surface, analogous to measured laminations for simple closed curves. In 1986, Bonahon introduced geodesic currents and proved that the notion of hyperbolic length for curves extends continuously to currents. Since then, many other functions defined on the space of curves have been proven to extend to currents, such as negatively curved lengths, lengths from singular flat structures or some word lengths. One of the key properties of these functions is that they decrease under surgery of an essential crossing of a curve, a phenomenon we refer to as the "smoothing property". In this talk, we explain how a function defined on the space of curves that satisfies the smoothing property can be extended to geodesic currents continuously. Our theorem subsumes previous extension results and, furthermore, it gives an extension of extremal length of curves. Finally, via work of Erlandsson-Souto and Rafi-Souto, it provides a new counting result for curves on surfaces relative to extremal length. (Received March 09, 2021)

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