

ABSTRACT:

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Geodesic currents and length functions of Hitchin and maximal representations.

Given a cocycle (satisfying some conditions) on the fundamental group of a closed surface, one can construct a cross ratio whose periods agree with the periods of the cocycle. Under further additional conditions, this cross ratio gives rise to a geodesic current m with the property that the Bonahon intersection number of m with closed curves agree with the periods of the cocycle. Applying this to maximal and Hitchin representations allows one to obtain some useful inequalities for symmetric length functions. As a consequence, one can obtain a criterion for when the entropy of a sequence in the “thin part” of the Hitchin or maximal components converge to 0.