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Tova Brown* (tova.brown@wlc.edu) and **Nicholas M. Ercolani**. *Integrable Mappings from a Unified Perspective*.

The combinatorics in this talk include rather well-known problems and results in map enumeration, fruit of Shaeffer's bijective methods which opened up opportunities to study geodesic distances on maps. Our work studies recurrence relations for these generating functions from the perspective of integrable systems. The integrability of the recurrence relations, $x_n = 1 + gx_n(x_{n+1} + cx_n + x_{n-1})$ for $c \in \{0, 1\}$, is known (one of them is the discrete Painlevé-I equation). Our work uses this integrability to establish global closed-forms, which contain elegant formulas for the generating functions of the map enumeration problems. (Received September 10, 2019)