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**Emma Previato\***, Department of Mathematics and Statistics, Boston University, Boston, MA 02215. *The Kleinian sigma function: Algebraic and transcendental aspects.*

Klein extended the definition of the (genus-one) Weierstrass sigma function to hyperelliptic curves and curves of genus three. H.F. Baker developed an in-depth theory of PDEs satisfied by the hyperelliptic sigma function, which plays a key role in recent work on integrable hierarchies (KdV-type, e.g.). Beginning in the 1990s, this theory of Kleinian sigma functions was revisited, originally by V.M. Buchstaber, V.Z. Enolskii and D.V. Leykin, much extended in scope, eventually to be developed for "telescopic" curves (a condition on the Weierstrass semigroup at a point). In work with J. Komeda and S. Matsutani, we went beyond the telescopic case. This talk will explain our construction and display formulas connecting it with classical special functions, together with questions and current projects. The focus is on applications to integrable dynamics. (Received February 19, 2018)