1125-11-367 **Emma Previato*** (ep@bu.edu), Department of Mathematics and Statistics, Boston University, Boston, MA 02215-2411. *Integrality of the Kleinian sigma function and Rankin-Cohen brackets on modular forms.*

Number-theoretic aspects of algebraic curves can be approached by the use of higher-genus Kleinian sigma functions, a generalization of the genus-one Weierstrass sigma function, the recent subject of much work in computational algebraic geometry and mathematical physics. This talk will review current work by Y. Ônishi showing the integrality of sigma functions associated to smooth plane telescopic curves, which admit a Weierstrass model. With this in hand, the sigma function becomes a modular form under the group $\mathrm{Sp}(2g, \mathbb{Z})$, g being the genus of the curve, that can be reduced modulo any odd prime. The focus of the talk is then the study of the Rankin-Cohen brackets on the ring of modular forms, devised by D. Zagier to provide it with a graded differential structure. We present results on differential properties of modular forms naturally associated to algebraic curves, as well as problems on their reduction to positive characteristic. Our case study is Klein's plane quartic, the modular curve $X(7)$; since it is not of plane telescopic type, we also present joint results (with J. Komeda and S. Matsutani, *Internat. J. Math.* **24**) on the extension of sigma to a class of affine-space curves, embedded via a non-symmetric Weierstrass semigroup at a point. (Received August 30, 2016)