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Michael J Griffin* (mjgriffin@math.byu.edu), 320 TMCB, Brigham Young University, Provo, UT 84602, and **Jonathan Hales**. *The modular parameterization of elliptic curves*.

In this talk I will discuss recent work with Jonathan Hales, an undergraduate at BYU. The modular parameterization of an elliptic curve E/\mathbb{Q} gives two modular functions $X(z)$ and $Y(z)$ which satisfy the defining equation of the curve, and which parameterize the points of the curve over \mathbb{C} . The motivating idea of this project is to understand the pre-images of rational points on the curve. The theory of complex multiplication shows that traces of Heegner points give rational points on quadratic twists of the elliptic curve. If the rank of the twisted curve is 1, then Gross and Zagier show the point constructed in this manner has infinite order. We are particularly interested in understanding the pre-images of points which are not traces of Heegner points. (Received February 05, 2018)