MODULAR PARAMETRIZATIONS OF CERTAIN ELLIPTIC CURVES

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ABSTRACT. Kaneko and Sakai recently observed that certain elliptic curves whose associated newforms (by the modularity theorem) are given by the eta-quotients can be characterized by a particular differential equation involving modular forms and Ramanujan-Serre differential operator. In this talk, we investigate certain properties of modular parametrization associated to the elliptic curves over $\mathbb{Q}$, and as a consequence we generalize and explain some of their findings. This is joint work with Yuichi Sakai and Koji Tasaka.