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**John Cullinan\*** (cullinan@bard.edu) and **Farshid Hajir**. *Algebraic properties of certain lifts of supersingular polynomials*. Preliminary report.

If  $p$  is a prime number, we define the supersingular polynomial  $s_p \in \mathbf{F}_p[j]$  by

$$s_p(j) = \prod_{j'} (j - j')$$

where  $j'$  runs over all the  $j$ -invariants of supersingular elliptic curves in  $\overline{\mathbf{F}}_p$ . Kaneko and Zagier describe a number of natural lifts of  $s_p$  to  $\mathbf{Q}[x]$  coming from the theory of elliptic modular forms. These include lifts due to Hasse-Deuring, Deligne, and Atkin as well as one of due to Kaneko and Zagier, denoted  $\widetilde{F}_k(j)$ . In this talk, we describe the algebraic properties of  $\widetilde{F}_k(j)$  and exhibit new cases of the irreducibility and Galois properties of these polynomials, giving further evidence of a conjecture of Mahlburg and Ono. (Received September 21, 2014)