

1176-11-198

Nathanaël Munier and **Ari Shnidman*** (ari.shnidman@gmail.com), Einstein Institute of Mathematics, Hebrew University, Jerusalem, Israel. *Sandpile groups of supersingular isogeny graphs.*

Attached to every finite graph X is a finite abelian group called $\text{Jac}(X)$, called the sandpile group or Jacobian of X . We prove a Cohen-Lenstra type result for the ℓ -Sylow subgroups of $\text{Jac}(X)$ as X varies through the family of Ramanujan graphs arising from supersingular elliptic curves in characteristic p (for a fixed prime p). Interestingly, the naive Cohen-Lenstra heuristic does not seem to hold in this setting. The proof uses the Galois representations associated to the modular curves $X_0(p)$ and some interesting ℓ -adic computations. (Received January 23, 2022)