



#### Large Discriminant Orientations

The red dot in the center is the elliptic curve  $E_0$  that is oriented by an imaginary quadratic order  $\mathcal{O}$ . The edges correspond to the cryptographic group action by the ideal class group of  $\mathcal{O}$  on  $\mathcal{O}$ -oriented elliptic curves (see <https://ia.cr/2025/1098>). Starting with the curve  $E_0$ , we compute the group action for all ideals of a small parameter set given by  $p = 5610083639$ ,  $M = 701260455$ ,  $r = 5$ ,  $t = 14411$ . The computation is performed recursively for depth two.