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Decomposing the Jacobians of Hermitian Curves

Hermitian curves are examples of maximal curves - they contain as many points as possible when considered over $\mathbb{F}_{q^2}$. As such, they are well studied objects. For example, it is known that the Jacobian of a Hermitian curve is isogenous to a product of super-singular elliptic curves. However, it is not known in general how their Jacobians decompose up to isomorphism (instead of isogeny). We explore this problem by instead considering the decomposition of the p-torsion group scheme of their Jacobians. This approach allows us to translate this problem into one that is purely combinatoric. This gives rise to an explicit decomposition with several interesting consequences. This is joint work with Rachel Pries.