Algebra Seminar

Tate-Shafarevich and Brauer groups of certain elliptic threefolds

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Abstract: The Tate-Shafarevich and Brauer groups are cohomological objects associated to varieties which feature prominently in arithmetic geometry. In particular, the Tate-Shafarevich group has a central role in one of the Millennium problems, the conjecture of Birch and Swinnerton-Dyer. Grothendieck originally examined a geometric analogue of the Tate-Shafarevich group. We show how to compute this geometric analogue in the case of certain threefolds fibered over a complex algebraic surface, where generically the fibers are elliptic curves. We also show how to compute the Brauer groups of these threefolds. This is joint work with Chad Schoen.

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