Mathematics, Statistics, and Computer Science   **@ UIC**

Algebraic Geometry Seminar

Twistor spaces for supersingular K3 surfaces

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Abstract: We will describe how the crystalline cohomology of a supersingular K3 surface gives rise to certain one-parameter families of K3 surfaces, which we call supersingular twistor spaces. Our construction relies on the special behavior of p-torsion classes in the Brauer group of a supersingular K3 surface, as well as techniques coming from the study of derived categories and Fourier-Mukai equivalences. As applications, we find new proofs of Ogus's crystalline Torelli theorem and Artin's conjecture on the unirationality of supersingular K3 surfaces. These results are new in small characteristic.

Wednesday, October 10 at 4:00 PM in 427 SEO