Supriya Pisolkar

Research Summary:

Chow groups of zero cycles of Châtelet surfaces over local fields

Let K be a finite extension of $\mathbb{Q}_p$, p-prime. By a Châtelet surface X over K we mean a smooth projective surface K-birational to a surface given by the equation:

$$y^2 - dz^2 = f(x)$$

where $f(x)$ is a monic cubic polynomial in x with coefficients in K. I am working on the computation of the Chow group $A_0(X)_0$ of 0-cycles of degree zero modulo rational equivalence of such surfaces. The case of Châtelet surfaces where $f(x)$ splits into three linear factors has been considered by Prof. Dalawat [arxiv:math/060433]. I have considered Châtelet surfaces for which $f(x)$ is either of the form $x(x^2 - e)$ or is an irreducible cubic. The complete result for the irreducible case has now been obtained. When $f(x) = x(x^2 - e)$, the calculation has been done when p is odd and when $K = \mathbb{Q}_2$. The work for finite extensions of $\mathbb{Q}_2$ is in progress.

Conference/Workshops Attended:

1. *Asian French summer school in Algebraic geometry and Number Theory*, Bures,Paris - July 06.

2. *Workshop and conference in Number Theory by Ramanujan Mathematical Society*, Hyderabad - June 06

3. *Number Theory conference*, HRI, Allahabad - Jan 07