



Module PMRF-ISSS042/2023

Introduction to Arithmetic Geometry

Name of the PMRF student

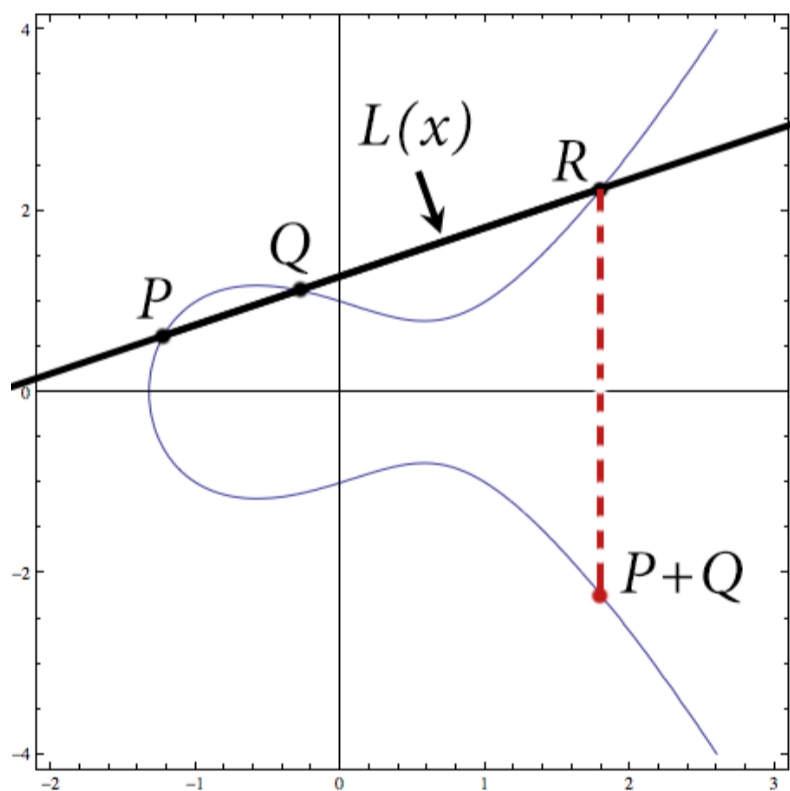
Ashutosh Jangle

Required background of the students taught

Basic knowledge of Groups, Rings, Modules and Field and Galois theory

Online session coordinator

Will be chosen from the list of registrants



Schedule of the module

Lecture videos will be uploaded at 5pm on Saturdays and on 5pm on Sundays.

There will also be some live interaction sessions whose timing will be decided as per the convenience of students.

Starts: September 5, 2023

Ends: Mid December

Details of the content of the module

1. Varieties

We will discuss basic definitions and properties of Affine and Projective varieties. We will also see examples. We will also try to solve some problems. We may discuss a more abstract scheme theoretic way to look at varieties.

2. Curves

Curves are one dimensional projective varieties. We will discuss divisors on curves. We will also see what are differentials on curves. This naturally leads to the discussion on the Riemann-Roch theorem. We will see some applications of the said theorem.

3. The Geometry of Elliptic Curves

We will then turn to Elliptic curves and prove several of their basic properties. We will be using the Algebraic Geometry developed.

4. Elliptic Curves over Local Fields

Finally we will look at Elliptic curves over local fields.

Meeting link : Will be shared later

[Link](#)

Contact email ID: issforum@gmail.com

Registration link:

<https://forms.gle/TiVpp13jsG7yX9Mo8>