Heegner Points

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Abstract

In this seminar, we will introduce Heegner points, which are defined over modular curves and are a useful tool in the study of elliptic curves.

We will start by constructing the modular curves $X_0(N)$ and $Y_0(N)$ and looking at how they are related to elliptic curves. We will then give an overview of complex multiplication and conclude defining Heegner points and showing how to construct one.

References

[1] Benedict H. Gross. "Heegner points on $x_0(n)$". In: *Modular forms (Durham, 1983)*. Horwood, 1984.

[2] Joseph H. Silverman. *Advanced topics in the arithmetic of elliptic curves*. Vol. 151. Graduate Texts in Mathematics. Springer-Verlag, 1994.

[3] Joseph H. Silverman. *The arithmetic of elliptic curves*. 2nd ed. Vol. 106. Graduate Texts in Mathematics. New York: Springer-Verlag, 2009.