

## Upstate New York Online Number Theory Colloquium

**Time and Date:** 2:00 pm EST July 6, 2020

**Speaker:** Florian Sprung

**Title:** Subleading terms of L-functions of elliptic curves

**Abstract:** The leading term of the L-function of an elliptic curve encodes some of its arithmetic via BSD. What about the subleading term? Wuthrich proved that this subleading term is related to the leading one as a consequence of the functional equation. Bianchi gave a p-adic analogue of this result, and also found another consequence of the functional equation concerning Iwasawa's mu-invariant, assuming p is ordinary. This talk presents joint work with C. Dion, in which we extend the results of Bianchi/Wuthrich in various directions: First, we discuss what happens in the supersingular (not ordinary) case. In this case, there is a pair of amenable functions, for which we prove Bianchi's/Wuthrich's ideas can be applied. Since we now have a pair of functions, we can do something new: We can relate their orders of vanishing to each other. If there is time, we also hope to discuss a result concerning lambda-invariants (for which p can be ordinary or supersingular).