

# NUMBER THEORY seminar

## P-ADIC GROSS-ZAGIER FORMULA AT CRITICAL SLOPE AND A CONJECTURE OF PERRIN-RIOU

**SPEAKER:** Kazim Büyükboduk (University College Dublin)

**DATE & TIME:** Thursday, 15 November 2018 - 11:30

**VENUE:** Aula 420, Módulo 17, Departamento de Matemáticas, UAM

**ORGANISER:** UAM/ICMAT

**ABSTRACT:** I will report joint work in progress with R. Pollack and S. Sasaki, where we prove a  $p$ -adic Gross-Zagier formula for critical slope  $p$ -adic  $L$ -functions. Besides the strategy for our proof, I will illustrate a number of applications. The first is the proof of a conjecture of Perrin-Riou, which predicts an explicit construction of the generator of the Mordell-Weil group in terms of  $p$ -adic  $L$ -values when the analytic rank is one. The second is towards a Birch and Swinnerton-Dyer formula when the analytic rank is one, yielding an improvement of the recent results of Jetchev-Skinner-Wan in this context (and simplifying their proof).