

Department of Mathematics, BGU

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## Colloquium

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**On** *Tuesday, May, 10 2016*

**At** *14:30 – 15:30*

**In** *Math 101-*

Henri Darmon ) McGill)

will talk about

### **Elliptic curves and explicit class field theory**

Abstract: The arithmetic of elliptic curves is related in multiple ways to explicit class field theory, notably through the theory of  $\ell$ -adic complex multiplication, one of the crown jewels of number theory. This connection plays a key role in recent progress in the recent theorem that there are positive proportions of elliptic curves of rank zero, and of rank one, for which the Birch and Swinnerton-Dyer conjecture is true, growing out of the work of Gross-Zagier, Kolyvagin, Bhargava-Shankar, Skinner-Urban-Wan, and Wei Zhang. I will discuss various relations that exist between elliptic curves and explicit class field theory, such as those above.