**Speaker:** Wei Zhang

**Title:** Heegner points and a B-SD conjecture

**Abstract:** We prove a B-SD conjecture for elliptic curves (for the $p^\infty$ Selmer groups with arbitrary rank) a la Mazur-Tate and Darmon in the anti-cyclotomic setting, for certain primes $p$. This is done, among other things, by proving a conjecture of Kolyvagin in 1991 on $p$-indivisibility of (derived) Heegner points over ring class fields. Some applications follow, for example, the $p$-part of the refined B-SD conjecture in the rank one case.