KOÇ UNIVERSITY

Science – Math Seminar

Speaker: Dr. Kazim Buyukboduk
Department of Mathematics, Stanford University

Date: Monday, January 2, 2006

Time: 16:45 (Tea and cookies will be served at 16:30)

Place: Science building, Room Z42

Title: Trivial Zeros, Kolyvagin Systems and Main Conjectures of Iwasawa Theory

Abstract:

Kolyvagin's machinery of Euler Systems is a powerful tool used to bound Selmer groups. If one looks at the Selmer groups over the Iwasawa tower, same methods are used to prove that the characterictic ideal of the Selmer group divides the ideal generated by the associated p-adic L-function (Main conjectures in various settings state that these ideals in fact should coincide). Mazur and Rubin isolated the notion of the "Kolyvagin Systems", which originally appear as the so called derivative classes in Kolyvagin's Theory. Kolyvagin Systems have exactly the same

applications as Euler Systems, but have a more rigid structure. We prove that Kolyvagin Systems over the Iwasawa tower exist as long as a certain trivial zero phenomenon does not occur; and we provide some applications related to Main Conjectures and conjecture of Birch and Swinnerton-Dyer.

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