

Abstract: For a  $p$ -adic Galois representation  $T$ , I will devise a general Euler/Kolyvagin system machinery which as an input takes an Euler system of rank  $r$  (in the sense of Perrin-Riou), and gives a bound on the Bloch-Kato Selmer group in terms of an  $r \times r$  determinant. I will give two fundamental applications of this refinement: The first with the (conjectural) Rubin-Stark elements; and the second with Perrin-Riou's (conjectural)  $p$ -adic L-functions.