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Brian Sinclair* (basincla@uncg.edu). *Enumerating Extensions of p -adic Fields with Given Invariants.*

It is well known that p -adic fields have a finite number of extensions of a given degree. With Ore's conditions and Krasner's mass formula, we can find all of the possible discriminants for such an extension and how many extensions have each discriminant. An algorithm of Pauli and Roblot uses these to enumerate extensions of given degree and discriminant. In this talk, we will look at finding Eisenstein polynomials that generate all totally ramified extensions of a given degree, discriminant, and additional invariants related to the ramification polygon. As we can find all possibilities for these invariants, this forms the core of a new algorithm for enumerating all extensions of given degree that is far faster than current methods and only requires computation in the base field and its residue class field. (Received September 22, 2014)