

The method of Eisenstein congruences in Iwasawa theory.

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In Iwasawa theory, people study the mysterious relations between special values of L-functions and arithmetic objects (such as certain Galois cohomology groups called Selmer groups) as they vary in p -adic families. These relationships are formulated as the Iwasawa main conjectures. Among the successful approaches to these conjectures, one divisibility of them, namely “the lower bound of Selmer groups”, is often proved by the method of “Eisenstein congruences”. In this talk, I will discuss this method, beginning with the early days of Iwasawa theory, in the era of Iwasawa, Serre, and Ribet. If time allows, I will also introduce recent advances in this area.

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