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# EIGENVALUE STATISTICS OF FLAT TORI

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The Berry Tabor conjecture predicts that the local statistics of eigenvalues of a regular system is Poissonian, at least in generic cases. In this talk, I consider the special case of flat tori which has the attractive feature that arithmetic tools become available. I will explain some ideas and methods from analytic number theory that shed light on this question, in particular with respect to small gaps, large gaps and triple correlation. This covers joint papers with Aistleitner, Bourgain, Radziwill, Rudnick.