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Title: *Counting integral points on symmetric varieties, and applications to arithmetic statistics*

Abstract: Over the past few decades, significant progress has been made in arithmetic statistics by the following two-step process: (1) parametrize arithmetic objects of interest in terms of the integral orbits of a representation of a group G acting on a vector space V ; and (2) use geometry-of-numbers methods to count the orbits of $G(\mathbb{Z})$ on $V(\mathbb{Z})$. But it often happens that the arithmetic objects of interest correspond to orbits that lie on a proper subvariety of V . In such cases, geometry-of-numbers methods do not suffice to obtain precise asymptotics, and more sophisticated point-counting techniques are required. In this talk, we explain how the Eskin–McMullen method for counting integral points on symmetric varieties can be used to study the distribution of 2-class groups in certain thin families of cubic number fields. (Joint with Iman Setayesh, Arul Shankar, and Artane Siad).