1106-37-686 **Jamie J Walton*** (jamie.walton@york.ac.uk), Department of Mathematics, University of York, Heslington, York, YO10 5DD, United Kingdom. *Frequency spectrums of cut-and-project sets.*

Given a Delone set Y (that is, a point set of Euclidean space which is relatively dense and uniformly discrete), one may consider its finite sub-patches as analogous to finite sub-words of some infinite word. Given a notion of size for such patches one could, for example, study the growth rate of the number of translation classes of patches of size r as $r \to \infty$, which provides a notion of complexity for the point set. In another direction, supposing that Y has uniform patch frequencies, one may consider the set of frequencies of patches of size r. We consider an important class of Delone sets, the so called cut-and-project sets. Such a setup is determined by a system of linear forms, along with a choice of "window". In this talk we will discuss how, for certain windows, Diophantine properties of the linear forms forces the number of frequencies of patches of size r to stay low, and in some cases even bounded, as $r \to \infty$. (Received September 04, 2014)