
AARON CHRISTIE, University of Ottawa

Some Geometrization in the Context of the Langlands Program

By way of a small example, we will discuss the topic of geometrization. We will describe two $\overline{\mathbb{Q}_\ell}$ -local systems, \mathcal{E} and \mathcal{E}' on the regular unipotent subvariety $\mathcal{U}_{0,K}$ of p -adic $\mathrm{SL}(2, K)$ and a number of special properties they possess. It turns out that these local systems have a number of remarkable properties. Most importantly, it is possible to obtain differences of distribution characters of representations of $\mathrm{SL}(2, K)$ from them. In this way, the two local systems, together with the process used to derive the distributions, are an example of a geometrization of elements of the Local Langlands Correspondence in the case of $\mathrm{SL}(2)$. We'll also discuss how to carry out similar constructions on a larger scale, and the limitations of this specific approach.