



Mathematics and CS Seminar

PGL₂-character varieties and Langlands duality over finite fields

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Host: Tim Browning

For a Riemann surface X and a complex reductive group G , G -character varieties are moduli spaces parametrizing G -local systems on X . When $G = \mathrm{GL}_n$, the cohomology of these character varieties have been deeply studied and under the so-called genericity assumptions, their cohomology admits an almost full description, due to Hausel, Letellier, Rodriguez-Villegas and Mellit. An interesting aspect is that the geometry of these varieties is related to the representation theory of the finite group $\mathrm{GL}_n(\mathbb{F}_q)$. We expect in general that G -character varieties should be related to (\mathbb{F}_q) -representation theory, where (\mathbb{F}_q) is the Langlands dual. In the first part of the talk, I will recall the results concerning GL_n . In the second part, I will explain how to generalize some of these results when $G = \mathrm{PGL}_2$. In particular, we will see how to relate PGL_2 -character varieties and the representation theory of $\mathrm{SL}_2(\mathbb{F}_q)$. This is joint work with Emmanuel Letellier.

Thursday, January 16, 2025 01:00pm - 03:00pm

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



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