Algebra
Seminar

A refined Brill-Noether theory over Hurwitz spaces

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Abstract: The celebrated Brill-Noether theorem says that the space of degree d maps of a general genus g curve to $\mathbb{P}^r$ is irreducible. However, for special curves, this need not be the case. Indeed, for general k-gonal curves (degree k covers of $\mathbb{P}^1$), this space of maps can have many components, of different dimensions (Coppens-Martens, Pflueger, Jensen-Ranganathan). In this talk, I will introduce a natural refinement of Brill-Noether loci for curves with a distinguished map $C \to \mathbb{P}^1$, using the splitting type of push forwards of line bundles to $\mathbb{P}^1$. In particular, studying this refinement determines the dimensions of all irreducible components of Brill-Noether loci of general k-gonal curves.

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