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**ADAM AFANDI**, WWU Münster

*Combinatorial Structures of Hyperelliptic Hodge Integrals*

A hyperelliptic Hodge integral is a type of intersection number on the moduli space of hyperelliptic curves. In the past, various mathematicians have discovered that these intersection numbers, when restricted to various families, tend to have remarkable combinatorial structure. However, in general, these intersection numbers are difficult to compute, and it is unclear what combinatorial structure governs all of them. In this talk, I will present some results that allow us to compute hyperelliptic Hodge integrals using elementary symmetric functions. At the end, I will talk about some conjectures and open problems.