

## **Modular invariants for genus 3 hyperelliptic curves**

We discuss the connection between invariants of binary octics and Siegel modular forms of genus 3. Using this connection, we describe certain modular functions for hyperelliptic curves of genus 3 whose denominators only contains primes of bad reduction for the associated hyperelliptic curves and that are suitable for carrying on the CM-method. Also for CM curves (or more generically, for curves with jacobians of compact type), we apply those results to determine the type of reduction of genus 3 hyperelliptic curves by looking at their invariants.

The first part of the talk is joint work with Sorina Ionica, Pinar Kilicer, Kristin Lauter, Maike Massierer, Adelina Manzateanu and Christelle Vincent.