Tony Shaska

On Superelliptic Curves and their Jacobians

Abstract   For a fixed genus $g > 1$ we discuss the stratification of the moduli space $\mathcal{M}_g$ based on the automorphism groups of the curves. Then for each superelliptic locus of $\mathcal{M}_g$ we define the corresponding dihedral invariants and give a stratification of the corresponding moduli in terms of these invariants. Decomposition of the superelliptic Jacobians will be determined for all $1 < g < 10$ and an algorithm is provided for all g.