Combinatorial Invaraints of Stable Curve in Genus 4: Classification and Computation

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This study delves into the computation and classification of combinatorial invariants associated with stable curves in genus 4. The work builds upon Zhang's decomposition formula, emphasizing local contributions from non-Archimedean places. By classifying dual graphs and developing algorithms for the explicit computation of admissible invariants like epsilon(gamma), phi(gamma), and lambda(gamma), this paper extends prior results for genus 3 curves. The methodologies and algorithms provided have broader applicability, which offers potential insights into higher-genus curves and connections between arithmetic geometry and physics.

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