

Clutching of curves, Newton polygons, and unlikely intersections.

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the Newton polygon of a curve over a finite field is an invariant of its Frobenius morphism. Given two such curves which are cyclic covers of the projective line, we study the compatibility conditions required to produce another curve whose Newton polygon is the amalgamated sum of the Newton polygons of these. These conditions do not hold in general but we find infinitely many situations in which they do. As an application, we produce infinitely many examples of unlikely intersections of the Newton polygon stratification with the Torelli locus. This is joint work with Li, Mantovan, and Tang.