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*Shapes of Galois Quartic Number Fields*

It is known that the shapes of  $S_4$ -quartic number fields are equidistributed in the space of shapes of rank 3 lattices. What happens if we restrict ourselves to Galois quartics? The Galois automorphisms force the shapes to live in lower-dimensional subspaces. We determine the shapes of Galois quartic fields, finding that where they lie depends on the Galois group and the ramification of 2. We also study the distribution of these shapes in these subspaces. This work is joint with Robert Harron.