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Topological visualisation techniques to enhance understanding of lattice QCD simulations

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Topology driven techniques are an important and established tool in volume visualisation computer graphics; however, they have yet to see widespread adoption in the lattice QCD community. In comparison to traditional isosurfacing algorithms they offer a number of advantages including faster rendering speeds and enhanced data exploration possibilities. The ability to summarise the topology of a scalar field is achieved using various graph based data structures and algorithms. In our work we use these techniques to visualise and quantify the topological effects experienced in SU(2) lattice gauge theory as chemical potential is varied.

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