

Abstract:

I will discuss  $U(1)$  lattice gauge theories which allow for exact electric-magnetic duality. Such lattice theories can be coupled to dynamical electric and magnetic matter. If all the matter is coupled in a symmetric manner, there is an exact electric-magnetic dual symmetry on the lattice at the self-dual value of the gauge coupling. I will discuss 't Hooft anomalies and the phase diagrams of such lattice theories.