

Abstract Submitted
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A bilayer Double Semion Model with Symmetry-Enriched Topological Order¹ LAURA ORTIZ, MIGUEL ANGEL MARTIN-DELGADO, Universidad Complutense de Madrid — We construct a new model of two-dimensional quantum spin systems that combines intrinsic topological orders and a global symmetry called flavour symmetry. It is referred as the bilayer Doubled Semion model (bDS) and is an instance of symmetry-enriched topological order. A honeycomb bilayer lattice is introduced to combine a Double Semion Topological Order with a global spin-flavour symmetry to get the fractionalization of its quasiparticles. The bDS model exhibits non-trivial braiding self-statistics of excitations and its dual model constitutes a Symmetry-Protected Topological Order with novel edge states. This dual model gives rise to a bilayer Non-Trivial Paramagnet that is invariant under the flavour symmetry and the well-known spin flip symmetry.

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