

Topological and dynamical gauge theories with ultracold atoms

Monday, 11 September 2023 22:40 (20 minutes)

I will present new strategies for engineering gauge theories with atomic platforms. First, I will illustrate the concept of encoding, eliminating partially or completely the gauge degrees of freedom by solving the local conservation laws of gauge theories. Then, I will show how to employ it to enable the realization of 1) topological gauge theories like chiral BF and Chern-Simons theories coupled to matter with Raman-dressed mixtures in the bulk and in optical lattices; and 2) dynamical gauge theories with plaquettes interactions in Rydberg atoms in tunable tweezer arrays.

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