

Abstract Submitted  
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**From Popov-Fedotov case to universal fermionization**<sup>1</sup> BORIS SVISTUNOV, NIKOLAY PROKOF'EV, University of Massachusetts, Amherst — We show that Popov-Fedotov trick of mapping spin-1/2 lattice systems on two-component fermions with imaginary chemical potential readily generalizes to bosons with a fixed (but not limited) maximal site occupation number, as well as to fermionic Hamiltonians with various constraints on the site Fock states. In a general case, the mapping—fermionization—is on multi-component fermions with many-body non-Hermitian interactions. Additionally, the fermionization approach allows one to convert large many-body couplings into single-particle energies, rendering the diagrammatic series free of large expansion parameters; the latter is essential for the efficiency and convergence of the diagrammatic Monte Carlo method.

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