Bold Diagrammatic Monte Carlo: Generic Technique for Polaron Problems (and More?) BORIS SVISTUNOV, NIKOLAY PROKOF'EV, University of Massachusetts, Amherst — We introduce a Monte Carlo scheme for sampling bold-line diagrammatic series specifying an unknown function in terms of itself. The range of convergence of this bold(-line) diagrammatic Monte Carlo (BMC) is significantly broader than that of a simple iterative scheme for solving integral equations. With BMC technique, a moderate "sign problem" turns out to be an advantage in terms of the convergence of the process. As an illustrative application, we solve the problem of fermipolaron (one spin-down particle interacting with the spin-up fermionic sea). The problem solved is prototypical for all polaron problems, and, probably, for many-particle systems as well.

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