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Continuation Algorithms for Circuit Simulation

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Large-scale circuit simulation presents many challenges to the underlying solver algorithms. Difficulties usually center around obtaining a steady-state solution for the DC operating point, but homotopy/continuation methods can be attractive for such problems because they offer theoretical guarantees of global convergence. Unfortunately, often the most obvious choices for continuation parameter are ineffective for large problems. This talk will focus on current efforts to develop continuation methods specific to the DC op calculation of large integrated circuits. We will present a comparison of several different approaches, applied to a number of representative circuits.