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A New Perturbative Method for Systems of Algebraic Equations

Monday 14 April 2025 17:00 (30 minutes)

—We present a new perturbative method to find the solutions of systems of equations in the neighbourhood of known solutions. Given a known solution to a system of equations, the proposed method allows one to find both the
dimension of the solution space around it and to construct a power series for the set of solutions in its neighbourhood –
and it does provide as many such answers as there may be discontinuous sets of solutions. It is in principle suited both
for numerical methods (by generating approximate solutions around a known solution) and for analytical methods (by
providing the dimension and topology of the set of solutions around that point).

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