This is a review submitted to Mathematical Reviews/MathSciNet.

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Author: Akinola, R. O.; Spence, A.

Title: A comparison of the implicit determinant method and inverse iteration.

MR Number: MR3235880

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Review text:

The paper offers arguments and illustrative examples supporting the replacement, near a defective eigenvalue, of the common inverse iterations (for which the convergence slows down) by a slightly modified implicit determinant method which remains quadratically convergent. The paper may be read as motivated by the recent perceivable growth of popularity of working with certain non-selfadjoint (one could call them Dyson's) representations of the operators of observables in quantum physics (cf. my compact review "Three-Hilbert-space formulation of Quantum Mechanics" in SIGMA 5 (2009), 001, arXiv:0901.0700 for more details). This re-attracted attention to the related Jordan-block degeneracies and to the numerical tractability of matrices with defective eigenvalues emerging at parameters called, in this context, the Kato's exceptional points.