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Karen Braman* (Karen.Braman@sdsmt.edu), 501 E. St Joseph St, Dept of Mathematics and Computer Science, Rapid City, SD 57701. *The non-symmetric eigenvalue problem: Finding middle deflations in the QR Algorithm.* Preliminary report.

For non-symmetric dense eigensystems, the QR algorithm has long been the method of choice for computing all of the eigenvalues. An under-appreciated consideration in this algorithm is the problem of detecting deflation. This talk will summarize recent progress in the search for deflations that occur near the middle of the QR iterates. The technique is an extension of earlier work using aggressive early deflation and, when used in conjunction with small-bulge multishift QR sweeps, permits efficient computation of eigensystems of large dense matrices (e.g. $n > 5000$) (Received September 27, 2005)