Reconstruction of flaws in ferromagnetic materials by an efficient zooming method

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Abstract. For small changes in the B-H characteristics, the dependence of the magnetic flux density on the flaw vectors is practically linear and is expressed employing a matrix *T*. A well enough conditioned submatrix is extracted from the matrix *T*. The unknowns associated with this submatrix can easly be separated from the rest of the unknowns through linear operations and then solved for. We only search the rest of the unknowns that yield the smallest error for the unknowns corresponding to *T* as compared to the values 0 or 1. A subregion zooming procedure leads to a spectacular increase of the efficiency.

Keywords—**NDT, magnetic flux leakage, half-deterministic method.**