

## ERROR PROPAGATION FORMULA OF MULTI-LEVEL ITERATIVE AGGREGATION-DISAGGREGATION METHODS FOR NON-SYMMETRIC PROBLEMS\*

IVANA PULTAROVÁ<sup>†</sup>

**Abstract.** Iterative aggregation-disaggregation methods for numerical computing of stationary probability distribution vectors of stochastic matrices are studied. The methods can use arbitrary numbers of levels and of smoothing steps. A formula for the error propagation is derived. Using this formula, some asymptotic convergence properties of these methods for non-symmetric problems are demonstrated.

**Key words.** Iterative aggregation-disaggregation methods, Multi-level methods, Markov chains, Stationary probability distribution vector.

AMS subject classifications. 65F08, 65F10.

<sup>\*</sup>Received by the editors on November 30, 2011. Accepted for publication on April 15, 2012. Handling Editor: Natalia Bebiano Providencia.

<sup>&</sup>lt;sup>†</sup>Department of Mathematics, Faculty of Civil Engineering, Czech Technical University in Prague, Czech Republic (ivana@mat.fsv.cvut.cz). Supported by Ministry of Education of The Czech Republic under the contract No. CEZ MSM 6840770001 and by the Grant Agency of The Czech Republic under the contract No. 201/09/1544.