
Marko Huhtanen
**SPLITTINGS FOR ITERATIVE SOLUTION OF
LINEAR SYSTEMS**

Institute of Mathematics
Helsinki University of Technology
Box 1100
FIN-02015
Finland
`marko.huhtanen@tkk.fi`

Consider iteratively solving a linear system

$$Ax = b, \tag{1}$$

with invertible $A \in \mathbb{C}^{n \times n}$ and $b \in \mathbb{C}^n$, by splitting the matrix A as

$$A = L + R, \tag{2}$$

where L and R are both readily invertible. In such a case the recently introduced residual minimizing Krylov subspace method [1] can be executed, allowing, in a certain sense, preconditioning simultaneously with L and R .

Splitting satisfying (2) result either from the structure of the problem, or are algebraic. Splittings of Gauss-Seidel type belong to the latter category. In this talk we discuss such splittings of A .

This is joint work with Mikko Byckling.

Bibliography

- [1] M. HUHTANEN AND O. NEVANLINNA, *A minimum residual algorithm for solving linear systems*, submitted manuscript available at www.math.hut.fi/~mhuhtane/index.html.