
Martin Stoll
**A Bramble-Pasciak-like method with applications in
optimization.**

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The Bramble-Pasciak Conjugate Gradient algorithm is a widely used tool in the finite element community. Motivated by a reformulation of the linear system in saddle point form, we introduce Bramble-Pasciak-like methods that can be used to solve problems coming from optimization. We illustrate that the eigenvalues for the preconditioned matrix in this setup have a very similar (sometimes equivalent) structure to the preconditioned matrix of a method which uses a constraint preconditioner. We furthermore give numerical results for optimization examples.

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