

Structured Preconditioners in Adaptive Optics Imaging

James Nagy

► **To cite this version:**

James Nagy. Structured Preconditioners in Adaptive Optics Imaging. International Conference On Preconditioning Techniques For Scientific And Industrial Applications, Preconditioning 2011, May 2011, Bordeaux, France. <inria-00581594>

HAL Id: inria-00581594

<https://hal.inria.fr/inria-00581594>

Submitted on 31 Mar 2011

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Structured Preconditioners in Adaptive Optics Imaging

List of authors:

J. Nagy¹

Imaging systems based on adaptive optics technology attempt to determine and remove phase errors in a measured wavefront. This process requires incorporating regularization, and solving an associated large scale least squares problem involving Kronecker products. Approaches to solve this problem typically use an iterative approach, such as LSQR.

In this talk we describe an efficient preconditioning scheme based on exploiting the Kronecker product structure. Numerical experiments show the effectiveness of the preconditioner.

¹Emory University. nagy@mathcs.emory.edu