**Fast Solvers for Models of Thermosolutal Convection**[1] P. AARON
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tional Institute of Standards and Technology — Numerical simulation provides in-
sight into the effect physical parameters have on fluid flows under conditions that
often make physical experiments and theory intractable. However, these simulations
are computationally demanding and in order to extend their applicability, highly
scalable and efficient numerical methods are being developed. We discuss a novel
block preconditioner based on domain decomposition and fast diagonalization that
can be used to accelerate iterative solution methods. We then demonstrate how this
technique provides an efficient means of simulating steady fluid flows, and discuss
how this can be used in solving models for thermosolutal convection.

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