

Project proposals: Fall 2014

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1. Extend the cyclic reduction scheme to a parallel solver for banded linear systems.
2. Use the QBX quadrature rule to evaluate layer potentials.
3. Compare the Barnes–Hut algorithm and the Fast Multipole Method.
4. Calculus of H-matrices for the fast inversion of elliptic problems.
5. Domain decomposition, Schwarz preconditioners for Laplace or Helmholtz problems.
6. Kronecker-product-based and tensor-based preconditioners.
7. Solution of the heat equation via potential theory and Ewald summation.

You are of course very welcome to suggest your own topic.