# Fast Iterative Solvers

Project 1 - Work Package 4

**Preconditioning for GMRES**

- Applying the preconditioner requires modification of the GMRES algorithm in two places (see Lecture 7)

- Implement first the Jacobi preconditioner (a simple row scaling of the matrix $A$)

- Implement next the Gauss-Seidel preconditioner. This requires implementation of a forward substitution algorithm in MSR format.

- Finally, implement ILU(0). You may use the algorithm posted with the assignment to perform the factorization.

- For ILU(0) you need forward and backward substitution (in MSR format) to apply the preconditioner.