**Poisson solvers in 3D edge turbulence fluid codes**

This short document aims at giving a rapid overview of the solutions implemented in fluid edge turbulence codes part of the TSVV3 project for the treatment of elliptic solvers. Depending on codes (model and numerical approach), one may have different elliptic solvers in your system of equations: electrostatic potential, magnetic potential, parallel heat flux… Please duplicate the last 2 tables for each of them to give an exhaustive overview of the approaches.

**Code information**

|  |  |
| --- | --- |
| **Code name** |  |
| **Coordinator (name)** |  |
| **Contact e-mail address** |  |
| **Repository URL** |  |

**Linear system**

|  |  |
| --- | --- |
| **Equations solved** |  |
| **Poloidal plane spatial discretization** | structured / unstructured |
| **Parallel discretization** | standard / FCI |
| **Approximation poloidal** | yes / no |
| **Dimensionality** | 2D / 3D |
| **Order of magnitude of condition number** |  |
| **Example of matrix structure (if possible, even for matrix-free algorithms)** | (please provide a figure of the typical matrix structure for diverted geometry - e.g., “spy” function in Matlab) |

**Linear solver**

|  |  |
| --- | --- |
| **Library** |  |
| **Matrix free** | yes / no |
| **Direct / iterative** | direct / iterative |
| **Preconditioner type** |  |
| **Solver type** |  |
| **Weight in cpu time (w/r full time step)** |  |
| **Scalability (weak, strong)** | (if possible illustrate with figure rather than single number) |