MOONS - Successive Over-Relaxation (SOR)

# Equations

The finite difference equation to solve begins with the Poisson equation:

## Non-uniform grid for cell based data

Using the definition

For a non-uniform stencil, we have

Collecting terms we have

Solving for we have

In MOONS, this is written as

Where

## Non-uniform grid for node based data

Using the definition

For a non-uniform stencil, we have

Collecting terms

Solving for we have

# SOR Parameter

The SOR Poisson solver was developed and the following optimal parameter was used:

# References

http://ocw.mit.edu/courses/mechanical-engineering/2-29-numerical-fluid-mechanics-fall-2011/lecture-notes/MIT2\_29F11\_lect\_16.pdf

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http://www.serc.iisc.ernet.in/graduation-theses/Karthik\_M.Tech.\_project\_report.pdf

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