

Title: **A finite volume method for the approximation of highly anisotropic diffusion operators on unstructured meshes.**

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The author presents a finite volume method suitable for highly anisotropic diffusion equations over general meshes. The calculation of the gradients is based on a cell-centered formulation for which the unknowns are found by imposing flux continuity conditions.

The main advantage of this method is that the resulting global matrix is symmetric and positive definite, providing for an accurate and robust solution.

The author presents examples of numerical solutions that show the method is more accurate than mixed hybrid finite elements for large anisotropic ratios.

See also:

1. Le Potier, Finite Volume Scheme Satisfying Maximum and Minimum Principles for Anisotropic Diffusion Operators available on-line at:
<http://www.latp.univ-mrs.fr/fvca5/exposes/lepotier-fvca5-presentation.pdf>