

Title: **An efficient cell-centered diffusion scheme for quadrilateral grids**

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Review by: Mario Forcinito

A very well written contribution to the body of knowledge dealing with efficient solutions for the diffusion equation, this work is a must read for people working on numerical solutions for diffusion phenomena and the Navier-Stokes equation.

The paper conveys the results of a very detailed analysis of symmetric semi-implicit methods for the diffusion equation in two dimensions. Although the scheme is restricted to quadrilateral grids and it is based on known numerical methods, the authors did a superb job investigating in a very thorough way the performance of the proposed scheme. The analysis, results and basic building blocks are presented in a very clear, detailed and easy to follow way.

The authors evaluate the performance of the scheme through the introduction of several numerical examples which are analyzed in depth.

See also from the same authors:

1. Implementation of the SSI method for heat conduction:  
<http://www.basko.net/mm/ralef/cav-tr1.pdf>
2. Solution of the radiation transfer equation:  
<http://www.basko.net/mm/ralef/ralef.pdf>