

## **Comparison of finite difference methods for the numerical simulation of reacting flow**

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The scope of this paper is to give a comparative evaluation of several competitive finite difference schemes developed to solve a one-dimensional convection-reaction problem. Numerical results show that compared with traditional first- or second-order difference schemes, the high-resolution techniques such as flux-corrected transport (FCT), the monotone upstream scheme for conservation laws (MUSCL) and weighted essentially non-oscillatory (WENO) schemes are efficient to track steep moving fronts and are essential for cases which use small numbers of grid points. The Superbee flux corrector is found to be the most appropriate for simulating the sharp fronts of the reactor model. (C) 2004 Elsevier Ltd. All rights reserved.

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