

Erratum: Modified lattice Boltzmann model for axisymmetric flows
[Phys. Rev. E 75, 056703 (2007)]

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(Received 8 October 2007; published 2 November 2007)

 DOI: [10.1103/PhysRevE.76.059902](https://doi.org/10.1103/PhysRevE.76.059902)

PACS number(s): 47.11.-j, 99.10.Cd

After substitution of the expression for the momentum flux tensor, the momentum equation (41) should read

$$\rho(\partial_t u_\alpha + u_\beta \partial_\beta u_\alpha) + \partial_\alpha P - \rho \nu \partial_\beta \partial_\beta u_\alpha = \sum_{i=0}^8 S_i^{(2)} c_{i\alpha} - 2\nu \partial_\alpha \frac{\rho u_y}{y} + \frac{1}{3\omega} \partial_\alpha \frac{\rho u_y}{y} + u_\alpha \frac{\rho u_y}{y}. \quad (41)$$

This means that extra terms now appear in Eqs. (43) and (44) that provide conditions on the second-order contribution to the source term in Eq. (17). These equations should read

$$\sum_{i=0}^8 S_i^{(2)} c_{ix} = \frac{\rho \nu}{y} (\partial_y u_x + \partial_x u_y) - \frac{\rho}{6y} \partial_x u_y - \frac{\rho u_x u_y}{y}, \quad (43)$$

$$\sum_{i=0}^8 S_i^{(2)} c_{iy} = \frac{\rho}{y} \left(2\nu - \frac{1}{6} \right) \left(\partial_y u_y - \frac{u_y}{y} \right) - \frac{\rho u_y^2}{y}, \quad (44)$$

respectively. The correct form of the tensor $Q_{\alpha\beta}$ in Eq. (45) is

$$Q_{\alpha\beta} = -\frac{\rho}{3\omega} (\partial_\alpha u_\beta + \partial_\beta u_\alpha).$$

The correct expression for the second-order contribution to the source term is then given by

$$S_i^{(2)} = \frac{3W_i}{y} \left[\frac{c_{iy}^2}{2} \left(u_x \partial_x u_y - \frac{3u_y \omega}{2} Q_{xx} - 3u_y \omega Q_{yy} - \frac{\rho u_y^2}{y} \right) - c_{ix} \left(\frac{6\nu}{6\nu+1} Q_{xy} + \frac{\rho}{6} \partial_x u_y - \rho u_x u_y \right) + c_{iy} (1 - 12\nu) \left(\frac{1}{2(1+6\nu)} Q_{yy} + \frac{\rho u_y}{y} - \rho u_y^2 \right) \right].$$

This should replace the very last equation in the paper.