



## Correction

**Article title:** A Multilevel in Space and Energy Solver for 3-D Multigroup Diffusion and Coarse-Mesh Finite Difference Eigenvalue Problems

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The above publication contains two errors in the derivation of the Multilevel in Space and Energy Diffusion (MSED) method. First, the  $\hat{D}$  term on the second line of Eq. (1) has the incorrect sign. This error propagates to Eq. (13d), which defines the grey diffusion coefficient in a manner consistent with the incorrect sign. Second, the  $\hat{D}$  terms in Eq. (1) need to be divided by  $\Delta x_i \Delta x_{i \pm \frac{1}{2}}$  to be consistent with Eqs. (12) and (13d). The corrected versions of Eqs. 1 and 13 are given by

$$\begin{aligned}
 & -D_{i+\frac{1}{2},g} \frac{\phi_{i+1,g} - \phi_{i,g}}{\Delta x_{i+\frac{1}{2}} \Delta x_i} + \hat{D}_{i+\frac{1}{2},g} \frac{\phi_{i+1,g} + \phi_{i,g}}{\Delta x_{i+\frac{1}{2}} \Delta x_i} + D_{i-\frac{1}{2},g} \frac{\phi_{i,g} - \phi_{i-1,g}}{\Delta x_i \Delta x_{i-\frac{1}{2}}} - \hat{D}_{i-\frac{1}{2},g} \frac{\phi_{i,g} + \phi_{i-1,g}}{\Delta x_i \Delta x_{i-\frac{1}{2}}} + \Sigma_{t,i,g} \phi_{i,g} \\
 & - \sum_{g'=1}^G \Sigma_{s0,i,g' \rightarrow g} \phi_{i,g'} = \lambda \chi_{i,g} \sum_{g'=1}^G \nu \Sigma_{f,i,g'} \phi_{i,g'}
 \end{aligned} \tag{1}$$

and

$$\langle D_{i_1, i_2} \rangle \equiv \begin{cases} \frac{1}{\Phi_{i_2}} \sum_{g=1}^G (D_{i_1,g} + \hat{D}_{i_1,g}) \phi_{i_2,g}, & \text{if } i_1 > i_2, \\ \frac{1}{\Phi_{i_2}} \sum_{g=1}^G (D_{i_1,g} - \hat{D}_{i_1,g}) \phi_{i_2,g}, & \text{if } i_1 < i_2. \end{cases} \tag{13d}$$

In the corrected Eq. (1),  $D$  and  $\hat{D}$  have the same units.

We note that these errors were only typographical in nature. The implementation of the MSED method in MPACT was consistent with the corrected equations, and the results and conclusions of this paper are unchanged.