Errata for ‘Computational Methods for Burnup Calculations with Monte Carlo Neutronics’ (17.4.2014)

- Section 4.1: The codes Monteburns [59] and TRITON [67] do not use Algorithm 3. They use Algorithm 7 below, where $N_{\text{iter}}$ is 0 for TRITON and an input parameter, usually set to 0 or 1, for Monteburns. Monteburns also performs one additional iteration on the first step. Note that Refs. 92 and 93 incorrectly call Algorithm 3 ‘the Monteburns method’ while referencing the Monteburns code.
- Section 4.1: The claim that Algorithm 3 is commonly called ‘the midpoint method’ is incorrect. The name has been used for both Algorithms 3 and 7. Hence it cannot be considered an established name for either.
- Section 4.1: Another prior method is missing. It works as Algorithm 2 except that on the predictor it uses $\phi_i^P$ from the previous step. The method thus requires only one neutronics solution per step after the first. This is the principal method used in the deterministic CASMO-4 and CASMO-5 codes, although they have a more complex treatment for gadolinium. Note that Ref. [63] incorrectly claims that CASMO-4 uses Algorithm 2.
- Section 4.4: The sentence “Two studies [92,93] comparing Algorithms 2 and 3 show the first one to be preferable.” is incorrect. The studies show Algorithm 3 to be preferable over Algorithm 2, not the other way around.

**Algorithm 7**

1: $\phi_{-1/2} \leftarrow \phi(x_0)$ 
2: \textbf{for} $i = 0, \ldots, I - 1$ \textbf{do} 
3: \hspace{1cm} $x_{i+1/2} \leftarrow e^{A\left(\phi_{i-1/2}\right)}(T_{i+1}-T_i)/2\cdot x_i$ 
4: \hspace{1cm} $\phi_{i+1/2} \leftarrow \phi(x_{i+1/2})$ 
5: \textbf{end for} 
6: \textbf{for} $i = 1, \ldots, N_{\text{iter}}$ \textbf{do} 
7: \hspace{1cm} $x_{i+1/2} \leftarrow e^{A\left(\phi_i\right)}(T_{i+1}-T_i)/2\cdot x_i$ 
8: \hspace{1cm} $\phi_{i+1/2} \leftarrow \phi(x_{i+1/2})$ 
9: \textbf{end for} 
10: $x_{i+1} \leftarrow e^{A\left(\phi_{i+1/2}\right)}(T_{i+1}-T_i)\cdot x_i$ 
11: \textbf{end for}