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A second order numerical scheme for the annealing of metal-intermetallic laminate composite: A ternary reaction system

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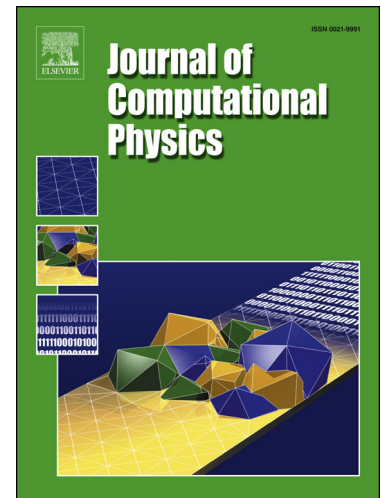
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## Highlights

- The development of a second-order semi-implicit scheme to a concentration-dependent cross-diffusion system that describes the annealing of Metal-Intermetallic Laminate composites.
- Numerical analysis on the convergence order is rigorously established, confirming expected discretization accuracy.
- The formation of Al-rich and Ni-rich layers and diffusion paths in a ternary phase diagram show nice agreements with experimental data.
- Rate constant, kinetic exponent, and morphology of layers are thoroughly investigated.

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