

## Mathematics &gt; Numerical Analysis

# Efficient numerical stability analysis of detonation waves in ZND

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As described in the classic works of Lee--Stewart and Short--Stewart, the numerical evaluation of linear stability of planar detonation waves is a computationally intensive problem of considerable interest in applications. Reexamining this problem from a modern numerical Evans function point of view, we derive a new algorithm for their stability analysis, related to a much older method of Erpenbeck, that, while equally simple and easy to implement as the standard method introduced by Lee--Stewart, appears to be potentially faster and more stable.

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