

## Mathematical Physics

# Eigenfrequency correction of Bloch-Floquet waves in a thin periodic bi-material strip with cracks lying on perfect and imperfect interfaces

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We analyse an asymptotic low-dimensional model of anti-plane shear in a thin bi-material strip containing a periodic array of interfacial cracks. Both ideal and non-ideal interfaces are considered. We find that the previously derived asymptotic models display a degree of inaccuracy in predicting standing wave eigenfrequencies and suggest an improvement to the asymptotic model to address this discrepancy. Computations demonstrate that the correction to the standing wave eigenfrequencies greatly improve the accuracy of the low-dimensional model.

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