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Wave propagation in mechanical metamaterials

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PROEFSCHRIFT

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The research done for this thesis was conducted at the Lorentz Institute, Leiden University. The author was sponsored by the China Scholarship Council (CSC).

The cover shows a sketch originally produced in the research process of this thesis. The sketch is a twisted kagome lattice with the twisting angle $\theta = 45^\circ$. The arrows indicate one of the four finite-frequency vibrational modes at the four-band crossing at the Γ point in Fig. 4.9. Some zigzag lines along three directions are marked in the colors of red, green, and blue. These lines give a hint to the physical reason for the doubly degenerate band structure.

The colored lines were drawn freehand on a piece of paper printed with a kagome framework. They were drawn by the author and dr. M. Fruchart during a discussion. The source code for the framework and mode analysis is credited to dr. J. Paulose.

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