Linear analysis of the mean flow of thermosolutal travelling waves
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— We carry out a stability analysis on the mean flow extracted from 2D travelling waves in thermosolutal convection over a range of values for separation parameter S, Lewis number Le and Prandtl number Pr. Consistent with similar analyses performed on the mean flow of the cylinder wake, we find that the eigenfrequency provides an accurate measure of the frequency of the travelling waves, in contrast to the frequency obtained by linearizing about the unstable conductive state. The linear growth rates are close to zero just beyond the Hopf bifurcation, and in the case of large Pr, remain so for larger values of the thermal Rayleigh number, implying that the travelling wave mean flow is marginally stable in these regimes.

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