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Vortical waves incident on junctions between different wave-bearing media PETER CARPENTER, University of Warwick, PRADEEP SEN, IIT Delhi, SHRIRAM HEGDE, IIT Delhi, CHRISTOPHER DAVIES, Cardiff University — We present a solution to a receptivity-type problem whereby a TS wave or other vortical wave propagating along a plane Poiseuille flow is incident on a junction between a rigid and compliant wall. Depending on whether the upstream wall is rigid or compliant there can be both transmitted and reflected waves. We show that the incident wave creates a virtual wave-driver. The problem then reduces to determining the strength of the driver in terms of the incident wave amplitude from which the amplitudes of the reflected and transmitted waves can then be determined. A high-Reynolds-number asymptotic theory combined with the use of adjoint eigenmodes is developed to solve this problem. We believe that the main features of this theory are generic for all vortical waves.

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