

An Immersed Interface FEM for 1D Elastic Continuum Vibrations Under a Traveling Load

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In this paper we study the problem of a load, traveling along elastic structures, such as strings, beams or plates. The case of semi-active viscous dampers is also considered. The numerical method, based on the Immersed Interface Finite Element Method is developed. The presence of Dirac-delta function terms in the mathematical model leads to using of a special basis functions near the interfaces. Many numerical experiments are presented for different practical cases.

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