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An asymptotic analysis of junctions of non-homogeneous elastic rods: Boundary layers and asymptotic expansions. (English) [Zbl 0816.73025](#)

Comput. Math. Math. Phys. **33**, No. 11, 1483-1508 (1993) and *Zh. Vychisl. Mat. Mat. Fiz.* **33**, No. 11, 1693-1721 (1993).

Summary: The problem of the junction of two non-homogeneous rods, the rigidity of one being an order of magnitude greater than that of the other, is considered. The problem depends on two parameters, e and w , where e is the ratio of the rod diameter to its length, and w is the ratio of the elastic moduli of the rods. A complete asymptotic series is constructed for solving the problem as $e \rightarrow 0, w \rightarrow \infty$.

MSC:

[74K10](#) Rods (beams, columns, shafts, arches, rings, etc.)

[35Q72](#) Other PDE from mechanics (MSC2000)

[35C20](#) Asymptotic expansions of solutions to PDEs

Cited in **1** Document

Keywords:

two parameters