Rigid Body Modes within the Framework of Domain Decomposition Methods

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Abstract: Semi-definite problems arise frequently, especially for aeronautic applications. Within the framework of domain decomposition methods, the difficulty is to compute the rigid body modes such structures. In this paper, we consider domain decomposition methods whose auxiliary problem uses corner modes. The non singularity of each subdomain can be guaranteed simply by making sure that every subdomain has enough corner nodes. But, the singularity of the global problem induces the singularity of the coarse matrix. Then, we expose how the null space for the global problem can be expressed as a linear arrangement of the corner modes. Numerical results are presented for static and modal analysis

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