

Boundedness of Solution Operator Families for the Navier-Lame Equations with Surface Tension in Whole Space

Title	Boundedness of Solution Operator Families for the Navier-Lame Equations with Surface Tension in Whole Space
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Abstract	In this paper, we consider the boundedness of the operator families in whole space for Navier-Lame model problem in bounded domain of N dimensional Euclidean space ($N \geq 2$). To find the boundedness of the operator families, first of all we construct model problem in the form of the resolvent problem by using Laplace transform. Then, using Fourier transform, we get the solution formula of the model problem. In this paper, we use the qualitative methods to construct solution formula of velocity (u). This step is fundamental stage to find the well-posedness of the model problem. As we known that fluid motion can be described in partial differential equation (PDE). Essential point in PDE are finding existence and uniqueness of the model problem. One methods of investigating the well-posedness is R -boundedness of the solution operator families of the model problem. We can find the R -boundedness of the solution operator families not only in whole-space, half-space, bent-half space and in general domain. In this paper we investigate the R -boundedness of the solution operator families only in whole space. By using this R -boundedness, we can find that the multipliers which form of the operator families are bounded with some positive constant.
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