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The presented method of integration of differential equations in elastostatics — the so-called mean-stress approach — yields a solution dependent on the elastic parameters and the topology of the body, and accordingly directly affected by Poisson's ratio: for example, the assumption of incompressibility \( (\nu = \frac{1}{2}) \) transforms its component Poisson's equation into a harmonic equation. Moreover, the solution for a multiply-connec ted region has to satisfy additional conditions depending inter alia on the geometry of the latter. These conditions ensure a single-valued mean normal stress.


It is assumed that any decay process is described in a Hilbert space \( \mathcal{H} = \mathcal{H}_A \oplus \mathcal{H}_D \), where \( \mathcal{H}_A \) corresponds to an unstable particle and \( \mathcal{H}_D \) to its decay products. It is shown that the generalized Weisskopf-Wigner condition (which guarantees an exponential decay law of the given unstable particle) has a close relation to the irreversibility of decay processes as well as of collision ones described in the same space \( \mathcal{H} \). If unitarity is added the principal structure of \( \mathcal{H} \) is identical with that on which the scattering theory of Lax and Phillips is based.


Dans ce travail on a examiné le problème de la plaque encastrée, simplement appuyée au dessous par une barre rectiligne encastrée aussi. En utilisant le principe du minimum de l'énergie potentielle on démontre l'existence et l'unicité de la solution dans certain espace \( W_s \) qui est défini dans §2. On examine aussi ses propriétés élémentaires, notamment celle de la densité des fonctions plus régulières. Enfin on démontre la convergence dans des espaces d'éléments finis.


The convergence of the semi-variational approximations to the solution of a mixed parabolic problem is investigated. The derivation of an estimate in \( L_2 \)-norm follows the approach suggested by Dupont, using a parabolic regularity and a projection introduced by Bramble and Osborn. As a result, the second semi-variational approximation is found to possess the maximal possible order of accuracy in space and the fourth order in time.


Let \( A \) be a nonzero complex matrix \( n \times n \), \( x_0 \in \mathbb{V}_n(C) \), \( x_0 \neq 0 \). Let us define \( x_k = A^{k}x_0 \), \( \mu_k = x_k^Hx_k/x_k^{H-1}x_k^{H-1} \) and \( v_k = x_k^{H-1}x_k^Hx_k^{H-1}x_k^{H-1} \). In this paper, asymptotic behaviour of the numbers \( \mu_k \) and \( v_k \) is studied in detail, mainly for matrices with non-linear elementary divisors.