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(These summaries may be reproduced)

JOSEPH J. GOLECKI, Haifa: *On integration of differential equations in elastostatics through determination of the mean stress.* Apl. mat. 19 (1974), 293—306. (Original paper.)

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-connected region has to satisfy additional conditions depending inter alia on the geometry of the latter. These conditions ensure a single-valued mean normal stress.

VÁCLAV ALDA, VOJTĚCH KUNDRÁT, MILOŠ VÁCLAV LOKAJÍČEK, Praha: *Exponential decay law and irreversibility of decay and collision processes.* Apl. mat. 19 (1974), 307—315. (Original paper.)

It is assumed that any decay process is described in a Hilbert space $\mathscr{H} = \mathscr{H}_A \oplus \mathscr{H}_D$, where $\mathscr{H}_A$ corresponds to an unstable particle and $\mathscr{H}_D$ 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 $\mathscr{H}$. If unitarity is added the principal structure of $\mathscr{H}$ is identical with that onwhich the scattering theory of Lax and Phillips is based.

JAROSLAV HASLINGER, Praha: *Sur la solution d'un problème de la plaque.* Apl. mat. 19 (1974), 316—326. (L'article original.)

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, 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.

IVAN HLAVÁČEK, Praha: *Some L_2-error estimates for semi-variational method applied to parabolic equations.* Apl. mat. 19 (1974), 327—341. (Original paper.)

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.

JAN ZÍTKO, Praha: *Kellog's iterations for general complex matrix.* Apl. mat. 19 (1974), 342—365. (Original paper.)

Let A be a nonzero complex matrix $n \times n$, $\mathbf{x}_0 \in \mathbf{V}_n(C)$, $\mathbf{x}_0 \neq \Theta$. Let us define $\mathbf{x}_k = A^k \mathbf{x}_0$, $\mu_k = \mathbf{x}_k^H \mathbf{x}_k / \mathbf{x}_{k-1}^H \mathbf{x}_{k-1}$ and $\nu_k = \mathbf{x}_{k-1}^H \mathbf{x}_k / \mathbf{x}_{k-1}^H \mathbf{x}_{k-1}$. In this paper, assymptotic behaviour of the numbers μ_k and ν_k is studied in detail, mainly for matrices with nonlinear elementary divisors.