INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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13 June 2024, 6 pm (UTC+3)

Well-posedness of the governing equations for quasi-linear viscoelastic model with pressure-dependent moduli in which both stress and strain appear linearly

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We consider the constitutive relation stemming from implicit material response between the histories of stress and strain in a body, and we enforce a-priori thresholding that ensures that the solution does not blow-up in finite time. Well-posedness for the governing mixed variational problem is established within the theory of coercive and maximal monotone graphs. The quasi-linear viscoelastic constitutive model is prescribed by tensorial hereditary integrals with aging or convolution memory kernels. For scalar Volterra equation, the correspondence principle provides formula of viscoelastic solution from the nonlinear elastic problem, which is supported by numerical solution.

*Seminar website: https://msrn.sfedu.ru/sl. The seminar uses Microsoft Teams online platform.
Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.

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