

CURRICULUM VITAE

Name: Tsviatko Vassilev Rangelov

Born: August 26, 1949, Sofia, Bulgaria

Marital Status: Married, two children

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Education:

Secondary School 1967 National Mathematical School, Sofia.

Graduate: 1973 MSc – Faculty of Mechanics and Mathematics, Moscow State University, Moscow.

Postgraduate 1976 PhD - Faculty of Mechanics and Mathematics, Moscow State University, Moscow;
Scientific advisor Prof. Dr. Yu.V. Egorov, PhD thesis:
“Some classes of pseudodifferential operators with double characteristics”.

Doctor of Science 2003 DSc – Institute of Mathematics and Informatics, Doctoral thesis:
“Direct and inverse problems for hyperbolic equations and systems in domains with moving boundaries and in cracked solids”

Professional Experience: Bulgarian Academy of Sciences, Institute of Mathematics and Informatics, Department of Mathematical Physics
1979 – 1988 Assistant Professor,
1988 - 2005 Associate Professor,
2005 - Professor.

Major Fields of Interests:

- Solvability and hypoellipticity for pseudodifferential operators with multiply characteristics.
- Scattering theory for hyperbolic equations and systems for moving obstacles.
- Nonlinear degenerate parabolic equations.
- Estimates of the first eigenvalue for linear elliptic equations.
- BIEM for boundary value problems in the domains with cracks.

Grants in last years: Joint grant with Aristotle University of Thessaloniki, Greece , grant - EST CLG 977774, financed by NATO Scientific and Environmental Affairs Division (2001-2003):" Seismic wave propagation in a Cracked Multilayered Geological Region”;

Joint grant with Technical University of Darmstadt, Germany, grant-436 BUL 113/118/0-1, financed by DFG (2002-2004): "Dynamic behavior of a multilayered piezoelectric solid" ;

Grant with Institute of Mathematics and Informatics, NZ 12-14/02 financed by Bulgarian Science Fund (2004-2007): “Hybrid approach of 3D BIE-Modal Summation Methods for seismic wave propagation in a laterally varying medium and applications for site effect estimation”;

Joint grant with Aristotle University of Thessaloniki, Greece , grant - EST CLG 980303, financed by NATO Scientific and Environmental Affairs Division (2003-2006):" Seismic response of cracked inhomogeneous geological deposits”;

Joint grant with Aristotle University of Thessaloniki, Greece , grant – Bg/Gr-11/2005, financed by Bulgarian-Greece Science Fund (2005-2008): "Development of analysis tools&software for synthesis of seismograms in complex geological regions”;

Joint grant with Technical University of Darmstadt, Germany, grant-GR 596/33-1, financed by DFG (2006-2008): " Wave propagation in piezoelectric solids with multiple cracks under different electrical boundary conditions ";

Joint grant with Technical University of Darmstadt, Germany, grant-GZ 436 BUL 113/150/0-1, financed by DFG (2008-2010): “ Dynamic crack-inclusion interaction problems in functionally graded anisotropic and piezoelectric solids”.

Grant with Institute of Mathematics and Informatics, DID 02/15 financed by Bulgarian Science Fund (2010-2014): “Hybrid Boundary Integral Equation - Cellular Neural Network approach for analysis of cracked piezoelectric materials”;

Joint grant with Aristotle University of Thessaloniki, Greece , University of Novi Sad, Serbia, Bauhaus University Weimar, Bulgarian Academy of Sciences: grant - EST CLG 984136, financed by NATO Scientific and Environmental Affairs Division (2011-2013):" Modelling seismic waves in inhomogeneous structural media”.

Joint grant with Bauhaus University in Weimar, Germany, grant -Wu 496/5-1, financed by DFG (2012-2016): “Simulation of seismic wave fields by non-conventional BIEM ".

Grant with Institute of Mathematics and Informatics, DFNI I-02/12 financed by Bulgarian Science Fund (2015-2017): “Integro-differential

equations for solving coupled problems in multifunctional materials with nano-heterogeneities”.

**Teaching
Experience:**

1978 – 1987 Classes at Sofia University, Mathematical and Physical Departments: Calculus, Ordinary and Partial Differential Equations.
1989 - 1996 Lecturing at High Technical Railway Institute: Mathematics I–IV for engineers.
1991 - 2000 Lecturing at Burgas University, Department of Applied Mathematics: Linear Algebra, Ordinary and Partial Differential Equations and Applications , Mathematics I– IV for engineers.
1995 - 1999 Lecturing at International University in Sofia : Basic Mathematics.
1996 – 2016 Lecturing at New Bulgarian University, Department of Informatics: Calculus, Geometry.
1997 - 2002 Scientific advisor of PhD student on Nonlinear PDEquations.
2006 – 2010 Scientific advisor of PhD student on Applied Mathematics.

Foreign Languages: Fluency in English and Russian, competence in Spanish and French.

List of Publications:

1. Yu. Egorov, T. Rangelov, A class of pseudodifferential equations, with double characteristics, that have no solution, Uspehi Mat. Nauk, 32:1,185-186, 1977 (in Russian).
2. Yu. Egorov, T. Rangelov, A class of pseudodifferential equations with multiple characteristics,Trudy Sem. Petrovsk., 3, 43-48, 1978 (in Russian).
3. T. Rangelov, An a priory estimate and hypoellipticity of a certain class of pseudodifferential operators with multiple characteristics, Vestnik Moskov.Univ.Ser I Mat. Mekh., 1, 12-20, 1979 (in Russian).
4. Yu. Egorov, T. Rangelov, On a class of pseudodifferential equations with double characteristics, Amer. Math. Soc. Transl. Ser.2,118,185-190, 1982.
5. T. Rangelov, Existence of the wave operators for dissipative hyperbolic systems in the exterior of moving obstacle, C.R.Acad.Bulg.Sci., 35:5, 581-583, 1982.
6. M. Marinov , T. Rangelov, On the support of the solutions of some degenerate nonlinear parabolic equations, C.R.Acad.Bulg.Sci.,37:3, 281-282, 1984 .
7. T. Rangelov, Existence of wave operators for dissipative hyperbolic systems in the exterior of moving body, Serdica, 10:1, 174-183, 1984 (in Russian).
8. M. Marinov , T. Rangelov, Estimates on the support of the solutions for some degenerate nonlinear parabolic equations, C.R.Acad.Bulg.Sci.,39:4, 17-19, 1986 .
9. M. Marinov , T. Rangelov, Estimates for the supports of solutions of a class of degenerate nonlinear parabolic equations, Serdica,12:1, 30-37, 1986 (in Russian) .

10. L. Hadjиков , P. Dineva , T. Rangelov, On the analysis of the dynamic soil-structure interaction by a hybrid method (SH-waves), Proc. Int. Conf. BEM in Engn, Beijing, 759-765, 1986.
11. A. Fabricant, M. Marinov , T. Rangelov, On the estimates on the initial trace of solutions of filtration equation, C.R.Acad.Bulg.Sci.,40:2, 25-27, 1987 .
12. V. Petkov , T. Rangelov, Leading singularity of the scattering kernel for moving obstacles, C.R.Acad.Bulg.Sci., 40:12, 5-7, 1987 .
13. L. Hadjиков , P. Dineva , T. Rangelov, Nonelastic soil-structure interaction by BE and FE methods, Trans. 9 Int. Conf. SMiRT, 1149-1153, 1987.
14. G. Popov , T. Rangelov , On the exponential growth of the local energy for moving bodies, C.R.Acad.Bulg.Sci.,40:8, 21-23, 1987 .
15. A. Fabricant, M. Marinov , T. Rangelov, Estimates on the initial trace for the solutions of the filtration equation, Serdica, 14, 245 – 257, 1988 .
16. G. Popov , T. Rangelov , The exponential growth of the local energy for moving obstacle, Osaka Math. J. 26:4, 881 – 895, 1989 .
17. A. Fabricant, M. Marinov , T. Rangelov, Properties of solutions of non-linear filtration equations, C.R.Acad.Bulg.Sci., 42:7, 15 – 18, 1989 .
18. V. Petkov , T. Rangelov, Leading singularity of the scattering kernel for moving obstacles, Mathematica Balkanica, 4:1, 48 – 65, 1990 .
19. A. Fabricant, M. Marinov , T. Rangelov, Regularizing effect for non-linear filtration equations, C.R.Acad.Bulg.Sci., 44:12, 9 – 11, 1991 .
20. L. Hadjиков , P. Dineva , T. Rangelov, On the solution of the problem of seismic wave propagation in a multilayered nonelastic region by the BEM, Soil Dynamics and Earthquake Eng. 10:6, 323 – 329, 1991.
21. T. Rangelov, Linear Algebra, Burgas Univ. Press, 1992. (textbook in Bulgarian)
22. A. Fabricant, M. Marinov , T. Rangelov, Some properties of degenerate parabolic equations, Mathematica Balkanica, 8:1, 59 – 73, 1994 .
23. T. Rangelov, Differential Equations, Burgas Free Univ., 1995 (preprint, textbook in Bulgarian).
24. P. Dineva , T. Rangelov, Dynamic behavior of a centrally cracked rectangular plate under uniform tone-harmonic tension, C.R.Acad.Bulg.Sci., 49:9-10, 43 – 46, 1996.
25. P. Dineva , T. Rangelov, BIEM for calculation of SIF in a solder joint, C.R.Acad.Bulg.Sci., 50:6, 19 – 22, 1997.
26. P. Dineva , D. Gross , T. Rangelov, Evaluation of scattered wave and stress concentration field in a damaged solder joint, Journal of Sound and Vibration, 223:2, 213-230, 1999.

27. P. Dineva , D. Gross , T. Rangelov , Ultrasonic wave scattering by a line crack in a solder joint, *Res. Nondestr. Eval.*,11, 117-135, 1999.
28. A. Fabricant, M. Marinov , T. Rangelov , Estimates for parabolic equations, *C.R.Acad.Bulg.Sci.*, 53:7, 31-34, 2000 .
29. T. Rangelov , P.Dineva, Numerical solution of integro-differential equations for a finite elastic cracked bodies, *C.R.Acad.Bulg.Sci.*, 53:9, 31-34, 2000.
30. P. Dineva , T. Rangelov, Modelling of the debonding effect of the base Cu-layer in a solder joint, *C.R.Acad.Bulg.Sci.*, 53:12, 23-26, 2000.
31. A. Fabricant, M. Marinov , T. Rangelov , Estimates for nonlinear parabolic equations, *Math. Balkanica*, 14, 3-4, 361-386, 2000.
32. P. Dineva , D. Gross , T. Rangelov, Dynamic behaviour of a bi-material rectangular plate with interface cracks under uniform time-harmonic tension, *Engineering Fracture Mechanics*, 69:11,1193-1218, 2002.
33. P. Dineva, D. Gross, T. Rangelov, Dynamic behaviour of a cracked solder joint, *Journal of Sound and Vibration*, 256:1, 81-102, 2002.
34. T. Rangelov , P.Dineva, Inverse scattering problems in cracked elastic plane, *C.R. Acad. Bulg. Sci.*, 55:1, 19-22, 2002.
35. A. Fabricant, T. Rangelov, One dimensional doubly nonlinear degenerate parabolic equations, *C.R.Acad.Bulg.Sci.*, *C.R. Acad. Bulg. Sci.*, 55:3, 5-8, 2002
36. G. Manolis, T. Rangelov, R. Shaw, Conformal mapping methods for variable parameter elastodynamics, *Wave Motion*, 36:2, 185-202, 2002.
37. T. Rangelov , P.Dineva, Inverse scattering by cracks in elastic plane, *Nonsmooth/Nonconvex Mechanics with Appl. In Eng.*, edd. C.C. Baniotopoulos, Thessaloniki, July 2002, 233-240.
38. T. Rangelov , G. Manolis, Fundamental solutions for variable density elastodynamics, *Nonsmooth/Nonconvex Mechanics with Appl. In Eng.*, edd. C.C. Baniotopoulos, Thessaloniki, July 2002, 275-282.
39. T. Rangelov , G. Manolis, On the existence of fundamental solutions for variable density elastodynamics, *Boundary Element Communications*, 13:2, 3-11, 2002.
40. A.Fabricant, T. Rangelov, Cauchy problem for nonlinear degenerate parabolic equations in one dimension, *Math. Balkanica*, 17, 1-2, 71-92, 2003.
41. T.Rangelov , , P. Dineva , D. Gross, Inverse scattering by line cracks in elastic solid, *Inverse Problems in Engn.* , 11:2, 141-155, 2003.

42. T. Rangelov, P. Dineva, D. Gross, A hypersingular traction boundary integral equation method for stress intensity factor computation in a finite cracked body, *Engng. Anal. BE*, 27, 9-21, 2003.
43. T.Rangelov, Wave scattering from a line crack in an elasto-anisotropic solid, *C. R. Acad. Sci. Bulg*, 56:4, 11-14, 2003.
44. T.Rangelov, Scattering from cracks in an elasto-anisotropic solid, *Theor. and Appl. Mech.*, 33:2, 55-72, 2003.
45. G. Manolis, T. Rangelov, R. Shaw, The non-homogeneous biharmonic plate equation: fundamental solutions, *International Journal of Solids and Structures*, 40, 5753-5767, 2003.
46. A.Fabricant, N. Kutev, T. Rangelov, On principal eigenvalue for linear second order elliptic equations in divergence form, *Pliska Stud. Math. Bulgar.* 15, 2003, 161-170.
47. T. Rangelov, P. Dineva, Scattering in a line crack in piezoelectric solid, *C. R. Acad. Sci. Bulg*, 57:3, 17-22, 2004.
48. P. Dineva, G. Manolis, T. Rangelov, Transient seismic wave propagation in a multilayered cracked geological region, *Journal of Sound and Vibration*, 273:1-2, 1-32,2004.
49. G. Manolis, P. Dineva, T.Rangelov, Wave scattering by cracks in inhomogeneous continua using BIEM, *International Journal of Solids and Structures*, 41:14, 3905-3927, 2004.
50. P. Dineva, G. Manolis, T. Rangelov, Transient seismic wave motion in a cracked multi-layered geological region, In: C.A. Brebbia (Edd.), *BEM XXVI, International Conference*, Bologna, Italy, April 19-21, WIT Press, Southampton, 455-464, 2004.
51. D. Gross, P. Dineva, T. Rangelov, BIEM for cracked piezoelectric solids under dymnamic load. In: Z.H.Yao, M.W.Yuan, W.X.Zhong (Edds), *WCCM VI in conjunction with APCOM'04*, September 5-10, Tsingua University Press & Springer Verlag, Beijing, China, 2004.
52. A.Fabricant, N. Kutev, T. Rangelov, On principal eigenvalue for linear second order elliptic equations in divergence form, *C. R. Acad. Sci. Bulg*, 58:1, 5-8, 2005.
53. P. Dineva, T. Rangelov, Gross, D. BIEM for 2D steady-state problems in cracked anisotropic materials, *Engng. Anal. BE*, vol. 29, N7, 689-698, 2005.
54. D. Gross, T.Rangelov, P. Dineva, 2D wave scattering by a crack in a piezoelectric plane using traction BIEM, *Journ. of Str. Integrity & Durability*, vol 1, N 1, 35-47, 2005.
55. G.D. Manolis, P.S. Dineva, T.V. Rangelov, Seismic Wave Scattering by Inhomogeneous Geological Deposits with Cracks, In: C.A.Brebbia, D.E.Beskos, G.D.Manolis, C.C.Spyrakos (Edds.) *Proceedins of the 5th International Conference on Earthquake Resistant Engineering Structures (ERES'05)*, WIT Press, Southampton, pp. 3-12, 2005.
56. G.D. Manolis, T.V. Rangelov, P.S. Dineva, Elastodynamic Fundamental Solutions for 2D Inhomogeneous Anisotropic Domains, In: G. Georgiou, P. Papanastasiou (Edds.) *Proceedings of the 5th GRACM Congress on Computational Mechanics*, Limassol, Cyprus, 471-478, 2005.

57. T. Rangelov, G. Manolis, P.Dineva, Elastodynamic fundamental solutions for certain families of 2d inhomogeneous anisotropic domains: basic derivations, *European Journal of Mechanics A/Solids* 24 820-836, 2005.
58. T. Rangelov, P.Dineva, Steady-state plane wave propagation in inhomogeneous 3D media, *J. Theoret. Appl. Mech.*, v.35:3, 15-31,2005.
59. G.D. Manolis, P.S. Dineva, T.V. Rangelov, Wave Scattering by a Sub-Surface Crack in an Inhomogeneous Elastic Half-plane, In *Proceedings of the 10th Jubilee National Congress on Theoretical and Applied Mechanics, Volume 1*, Eds. Y. Ivanov, E. Manoach, R. Kazandjiev, Marin Drinov Academic Publishing House, Sofia, Bulgaria, pp. 282-287, 2005.
60. P. Dineva, D. Gross, T. Rangelov, BIEM for cracked piezoelectric solids under dynamic load, In *Proceedings of the 10th Jubilee National Congress on Theoretical and Applied Mechanics, Volume 1*, Eds. Y. Ivanov, E. Manoach, R. Kazandjiev, Marin Drinov Academic Publishing House, Sofia, Bulgaria, pp. 157-161, 2005.
61. G.D. Manolis, P.S. Dineva, T.V. Rangelov, Elastic Wave Scattering Phenomena in Inhomogeneous Media due to a Buried Crack, In *Proceedings of the 2nd International Conference on Nonsmooth/Nonconvex Mechanics with Applications in Engineering (NNMAE-2006)*, Ed. C.C. Baniotopoulos, Ziti Editions, Thessaloniki, pp. 347-354, 2006.
62. G.D. Manolis, T.V. Rangelov, P.S.Dineva, Wave Motion through Cracked, Functionally Graded Materials by BEM, In *Proceedings of the 28th World Conference on Boundary Elements and other Mesh Reduction Methods (BEM-MRM 28)*, Eds. C.A Brebbia, J.T. Katsikadelis, WIT Press, Southampton, pp. 307-316, 2006.
63. G. Manolis, T. Rangelov, Non-homogeneous elastic waves in solid: notes on the vector decomposition technique, *Soil Dyn. Earthq. Engn*, v.26, 952-959, 2006.
64. P.Dineva, G. Manolis, T. Rangelov, Sub-surface crack in an inhomogeneous half-plane: wave scattering phenomena by BIEM. *Engn. Anal BE*, v. 30, 350-362, 2006.
65. P. Dineva, D. Gross, T.Rangelov, Wave scattering in a cracked piezoelectric materials – a BIEM approach. *J. Theoret. Appl. Mech.*, v.36:2, 65-88,2006.
66. P.Dineva, T. Rangelov, Three-dimensional analysis of ground motion in a finite geological region saturated in an inhomogeneous half-space, *C. R. Acad. Sci. Bulg*, 59:4, 387-392, 2006.
67. P.Dineva, T. Rangelov, G. Manolis, Elastic wave propagation in a class of cracked, functionally graded materials by BIEM, *Comput. Mech.*, 39, 293-308, 2007.
68. G.D. Manolis, T.V. Rangelov, P.S. Dineva, Free-field wave solutions in a half-plane exhibiting a special type of continuous inhomogeneity, *Wave Motion*, 44, 304-321, 2007.
69. D. Gross, P. Dineva, T.Rangelov, BIEM solution of piezoelectric cracked finite solids under time-harmonic loading, *Engng. Anal. BE*, 31, 152-162, 2007.
70. T. Rangelov, P.Dineva, Dynamic behaviour of a cracked inhomogeneous piezoelectric solid. Part I: in-plane case, *C. R. Acad. Sci. Bulg*, 60:2, 141-148, 2007.

71. T. Rangelov, P.Dineva, Dynamic behaviour of a cracked inhomogeneous piezoelectric solid. Part II: anti-plane case, *C. R. Acad. Sci. Bulg.*, 60:3, 231-238, 2007.
72. A. Fabricant, N. Kutev, T. Rangelov, The asymptotic behaviour of the first eigenvalue of linear second-order elliptic equations in divergence form, *Serdica, Mathematical Journal.*, 34:1, 47-58, 2007.
73. A. Fabricant, N. Kutev, T. Rangelov, On the first eigenvalue for second order elliptic equations in divergence form, *Cubo. A Mathematical Journal*, v.9:3, 47-64, 2007.
74. T. Rangelov, P.Dineva, D. Gross, Effect of material inhomogeneity on the dynamic behaviour of cracked piezoelectric solids: a BIEM approach, *Z. Angew. Math. Mech.*, v.88:2, 86-99, 2008.
75. P. Dineva, G. Manolis, T. Rangelov, Site effect due to wave path inhomogeneity by BEM, *Engng. Anal. BE*, 32, 1025-1036, 2008.
76. P.Dineva, D. Gross, T. Rangelov, Dynamic interaction of cracks in piezoelectric and anisotropic solids: a non-hypersingular BIEM approach, *Thoret.Appl.Mech*, 35:1-3, 73-91, Belgrade 2008.
77. Y. Stoyanov, T. Rangelov, Time-harmonic behaviour of anti-plane cracks in inhomogeneous magnetoelastostatic solid, *Compt. Rend. Acad.Bulg. Sci.*, 62:2,175-186, 2008.
78. T. Rangelov, P.Dineva, Wave Propagation in the Anisotropic Inhomogeneous Half-Plane, In *Proceedings of the NATO. Advanced Research Workshop on Coupled Site and Soil Structure Interaction Effects with Application to Seismic Risk Mitigation, Borovets, Bulgaria, 30 August – 3 September 2008*, eds. T.Schanz and R. Yankov, Springer, The Netherlands, pp.43-52, 2009.
79. P. Dineva, T. Rangelov, Time-harmonic behaviour of a cracked inhomogeneous piezoelectric solid by BIEM, *Journal of Theoretical and Applied Mechanics*, 39:4, 93-100, 2009.
80. Y. Stoyanov, T. Rangelov, Time-harmonic crack problems in magnetoelastostatic plane by BIEM, *Journal of Theoretical and Applied Mechanics*, 39:4, 73-92, 2009.
81. G.D. Manolis, T.V. Rangelov, P.S. Dineva, Free-field dynamic response of an inhomogeneous half-plane, *Archive of Applied Mechanics*, 79, 595-603, 2009.
82. T. V. Rangelov, G. D. Manolis, P. Dineva, Wave propagation in a restricted class of orthotropic inhomogeneous half-planes, *Acta Mechanica*, 210, 169-182, 2010.
83. P. Dineva, D. Gross, R. Müller, T. Rangelov, Time-harmonic crack problems in functionally graded piezoelectric solids via BIEM, *Engineering Fracture Mechanics*, 77, 1101-1115, 2010.
84. T.V. Rangelov, G.D. Manolis, Time-harmonic Green's function for the half-plane with quadratic-type inhomogeneity, In *Recent Developments in Boundary Element Methods*, ed. E.J.Sapountzakis, WIT Press, Southampton, pp. 147-160, 2010.
85. M. Marinov, T. Rangelov, Solution of integro-differential equations using Mathematica with application in fracture mechanics, In *Proceedings of the 6 ICCSE 2010*, Eds. R Stainov, V. Kanabar, P. Assenova, pp. 158-167, 2010.

86. T. Rangelov, P. Dineva, D. Gross, On the influence of electric boundary conditions on dynamic SIFs in piezoelectric materials, *Archive of Applied Mechanics*, 80, 985-996, 2010.
87. P. Dineva, D. Gross, R. Müller, T. Rangelov, BIEM analysis of dynamically loaded anti-plane cracks in graded piezoelectric finite solids, *International Journal of Solids and Structures*, 47, 3150-3165, 2010.
88. T. Rangelov, Y. Stoyanov, Dynamic behavior of cracked functionally graded magneto-electroelastic solids, *C. R. Acad. Sci. Bulg.*, 63:12, 1715-1724, 2010.
89. T. V. Rangelov, G. D. Manolis, Time-harmonic elastodynamic Green's function for the half-plane modeled by a restricted inhomogeneity of quadratic type, *Journal of Mechanics of Materials and Structures*, 5:6, 909-924, 2010.
90. P. Dineva, D. Gross, R. Müller, T. Rangelov, Dynamic stress and electric field concentration in a functionally graded piezoelectric solid with a circular hole, *Z. Angew. Math. Mech.*, v.91:2, 110-124, 2011.
91. T. Rangelov, Y. Stoyanov, P. Dineva, Dynamic fracture behavior of functionally graded magneto-electroelastic solids by BIEM, *International Journal of Solids and Structures*, 48, 2987-2999, 2011.
92. M. Marinov, T. Rangelov, BIEM solution for cracked finite piezoelectric solids using Mathematica, In *Proceedings of the 7 ICCSE 2011*, Eds. R. Stainov, V. Kanabar, P. Assenova, pp. 224-239, 2011.
93. T. Rangelov, Y. Stoyanov, P. Dineva, Dynamic crack problems in functionally graded magneto-electroelastic solids, In *Proceedings of BGSIAM'10*, Eds. S. Margenov, A. Slavova, S. Dimova, pp. 65-70, 2011.
94. Müller R., Gross D., Rangelov T., Dineva P. Dynamic fracture of piezoelectric solids with defects. In: *Proceedings of the 11th International Conference on the Mechanical Behavior of Materials*, Eds. M. Guagliano, L. Vergani, *Procedia Engineering*, V. 10, pp. 76-81, 2011, Elsevier.
95. M. Marinov, T. Rangelov, Integro-differential equations for anti-plane cracks in inhomogeneous piezoelectric plane, *C. R. Acad. Sci. Bulg.*, 64:12, 1669-1678, 2011.
96. R. Müller, P. Dineva, T. Rangelov, D. Gross, Anti-plane dynamic hole-crack interaction in a functionally graded piezoelectric media, *Arch. Appl. Mech.*, 82, 97-110, 2012.
97. G. D. Manolis, P. S. Dineva, T. V. Rangelov, Dynamic fracture analysis of a smoothly inhomogeneous plane containing defects by BIEM, *Engineering Analysis with Boundary Elements*, 36, 727-737, 2012.
98. M. Marinov, T. Rangelov, Time-harmonic behaviour of cracked piezoelectric solid by BIEM, *Serdica J. Comput.*, 6:2, 185-194, 2012.
99. A. Fabricant, N. Kutev, T. Rangelov, New Hardy-type inequalities with singular weights, *Pliska Stud. Math. Bulgar.*, 21, 237-246, 2012.

100. A. Fabricant, N. Kutev, T. Rangelov, Hardy type inequalities with double singular kernels, *Centr. Europ. J. Math.* 11:9, 1689-1697, 2013.
101. T. Rangelov, A. Slavova, Dynamic behaviour of piezoelectric solid via CNN approach, *C. R. Acad. Sci. Bulg.*, 66:6, 801-808, 2013.
102. G.D.Manolis, K.Makra, P.Dineva, T.Rangelov Seismic motions in a non-homogeneous soil deposit with tunnels by a hybrid computational technique. *Earthquake and Structures. An International Journal* 5:2, 161-205, 2013.
103. Y. Stoyanov, T. Rangelov, Inverse scattering problems for cracked piezoelectric media, *AIP conf. Proc.* 1561, 318-326, 2013.
104. P. Dineva, G. Manolis, T. Rangelov, F. Wuttke, SH-wave scattering in the orthotropic half-plane weakened by cavities using BIEM, *Acta Acustica united with Acustica*, 100:2, 266-276, 2014.
105. A. Fabricant, N. Kutev, T. Rangelov, Note on sharp Hardy-type inequality, *Mediterranean Journal of Mathematics*, 11, 31-44, 2014.
106. P. Dineva, D. Gross, R. Müller, T. Rangelov, Dynamic fracture of piezoelectric materials, *Solutions of Time-harmonic problems via BIEM. Solid Mechanics and its Applications*, volume 212, Springer International Publishing, Switzerland 2014. ISBN: 978-3-319-03960-2.
107. T. Rangelov, M. Marinov, P. Dineva, Time-harmonic behaviour of cracked piezoelectric solid by boundary integral equation method, *Journal of Theoretical and Applied Mechaqnics*, 44:1, 55-78, 2014.
108. T.V.Rangelov, G.D. Manolis, Point force and dipole solutions in the inhomogeneous half-plane under time-harmonic conditions, *Mechanics Research Communications*, 51, 90-97, 2014.
109. A. Fabricant, N. Kutev, T. Rangelov, An estimate from below for the first eigenvalue of p-Laplacian via Hardy inequalities. In *Mathematics in Industry*, Ed. A. Slavova, pp.20-35 Cambridge Scholar Publishing New Castle, 2014.
110. I-K. Fontara, S. Parvanova, F. Wuttke, T. Rangelov, P. Dineva, BEM for seismic wave propagation in inhomogeneous in depth half-plane, In *Boundary Elements and other Mesh Reduction Methods XXXVII*, Eds. C.A. Brebbia, A.H-D. Cheng, WIT Press, Southampton, pp. 265-276, 2014.
111. I-K. Fontara, F. Wuttke, T. Rangelov, P. Dineva, A non-conventional BEM for seismic wave propagation in continuously inhomogeneous half-plane, In *Numerical Methods in Geotechnical Engineering*, Eds. M. A. Hicks, B. J. Brinkgreve, A. Rohe, Taylor and Francis Group, London, 367-372, 2014.
112. A. Fabricant, N. Kutev, T. Rangelov, Sharp Hardy-type inequalities in a ball, *Pliska Stud. Math. Bulgar.*,23, 67-80, 2014.
113. T. Rangelov, P. Dineva, Anti-plane scattering by heterogeneities in piezoelectric plane by BIEM, *Pliska Stud. Math. Bulgar.*,23, 127-140, 2014.

114. G.D. Manolis, P.S.Dineva, T.V. Rangelov, Seismic wave scattering in non-homogeneous geological deposits with cracks, In: Earthquake – Soil Interaction, Ed. S. Syngellakis, , WIT Press, Southampton, pp. 87-100, 2015.
115. F. Wuttke, I-K Fontara, P. Dineva, T. Rangelov, SH-wave propagation in a continuously inhomogeneous half-plane with free-surface relief by BIEM, ZAMM, Z. Angew. Math. Mech. 95:7, 714-729, 2015.
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January, 2017