

**Informare privind activitatea
Institutului de Matematică Octav Mayer Iasi
pentru anul 2017**

1. Membrii Secției – lucrări publicate în anul 2017; cea mai importantă lucrare a fiecărui membru apărută în anul 2017.
2. Institute/centre de cercetare. Domenii de cercetare. Programe fundamentale (dacă este cazul). Programe prioritare (dacă este cazul).

Direcții de cercetare:

I. Ecuții diferențiale și control

II. Analiză matematică

III. Mecanică teoretică

3. Resurse umane: cercetători, doctori, conducători de doctorate (**vezi anexa 2**).
4. Activitate de formare a tinerilor cercetători: doctoranzi, post-doctoranzi.
5. Infrastructură de cercetare nouă achiziționată/completată în anul 2017: biblioteca de specialitate, echipamente de cercetare (cu valori peste 10 kEuro), etc.
6. Rezultatele cercetării desfășurate în anul 2017 (**vezi anexa 2 și anexa 3**).
7. Realizări excelente obținute în anul 2017 (cca. 3 realizări), ale Secției și institutelor/centrelor coordonate:

- Cărți (opere fundamentale);

- A. Madeo, P. Neff, G. Barbagallo, M.V. D'Agostino, **I.D. Ghiba**. *A review on wave propagation modeling in band-gap metamaterials via enriched continuum models*. In F. dell'Isola, M. Sofonea and D. Steigmann (eds.), *Mathematical Modelling in Solid Mechanics*, Advanced Structured Materials, vol. 69, 2017, Springer, 89-105.

- Lucrări științifice (publicate în reviste cu factor de impact ridicat);

1. **V. Barbu**, The steepest descent algorithm in Wasserstein metric for the sandpile model of self-organized criticality, *SIAM Journal on Control and Optimization*, vol. 55, no. 1 (2017), 413-428. **FI=1.45, SRI=1.933**. ISSN: 0363-0129.
2. **D. Ieșan**, Thermoelastic deformation of reinforced chiral cylinders, *ActaMechanica*, 228 (2017), 3901-3922. (**FI:1.851 ; SRI: 1024**).
3. **Ionut Munteanu**, Stabilization of parabolic semilinear equations. *Internat. J. Control* 90 (2017), no. 5, 1063-1076. **FI=2,208, SRI=1.176**

- Rapoarte/studii de mare interes național;
 - Alte realizări pe care le considerați excelente (dacă este cazul).
8. Premii internaționale/naționale, ale Academiei Române obținute de către cercetători (autori, lucrări premiate).
9. Cooperări științifice naționale și internaționale, inclusiv în cadrul proiectelor (cu menționarea numărului proiectului și a partenerilor); vizitatori din străinătate.
10. Conferințe (simpozioane)/manifestări științifice organizate de Secție; conferințe (simpozioane)/ manifestări științifice organizate de institutele/centrele coordonate.
1. *International Conference on Applied and Pure Mathematics*, 2-5 noiembrie 2017.
 2. *Current Trends in Applied Mathematics*, workshop cu participare internațională, 27-28 octombrie 2017, cu prilejul Zilelor Academice.
 3. Simpozionul aniversar: *Academicianul Radu Miron la 90 de ani*, 17 octombrie 2017.
11. Granturi/proiecte câștigate în competiții naționale/europene (tabel separat, (dacă este cazul) - titlul, director grant/proiect, organismul finanțator, durata grantului/proiectului, valoarea totală /valoarea pentru anul 2017).
1. **PN-III-P4-ID-PCE-2016-0011.** *Analiza și controlul ecuațiilor stochastice Schrödinger și a unor modele de difuzie neliniară.* Director de proiect: **V. Barbu.** Membri în echipă: **I. Munteanu, A.E. Melnig.** Contract 49/2017, durata 30 luni (12.07.2017-31.12.2019). Finanțator: UEFISCDI. Valoare totală: 850.000,00 lei. Valoare pentru 2017: 246.330,00 lei.
 2. **PN-II-RU-TE-2014-4-0083.** Membru în echipă: **I. Munteanu.**
12. Alte rezultate (dacă este cazul)
- Concluzii și propuneri.

DIRECTOR,

Prof.dr. Cătălin-George Lefter

6. Rezultatele cercetării desfășurate în anul 2017

Articole ISI publicate în reviste din străinătate = 34

4. **V. Barbu**, M., Rockner, Global solutions to random 3D vorticity equations for small initial data, *Journal of Differential Equations*, vol. 263, nr. 9 (2017), 5395-5411. <https://doi.org/10.1016/j.jde.2017.06.020> ISI, **FI=1.988, SRI=2.454**. (5 November 2017; ISSN: 0022-0396)
5. **V. Barbu**, Colli, P., Gilardi, G., Marinoschi, G., Feedback stabilization of the Cahn-Hilliard type system for phase separation, *Journal of Differential Equations*, vol. 262, no. 3 (2017), 2286-2334, **FI=1.988, SRI=2.454**. [5 February 2017; ISSN: 0022-0396] <https://doi.org/10.1016/j.jde.2016.10.047>
6. **V. Barbu**, Rockner, M., Zhang, D., The stochastic logarithmic Schrödinger equation, *Journal de Mathématiques Pures et Appliquées*, vol. 107, no. 2 (2017), 123-149. **FI= 1.802, SRI= 2.967**. [ISSN: 0021-7824]
7. **V. Barbu**, Colli, P., Gilardi, G., Marinoschi, G., Rocca, E., Sliding mode control for a nonlinear phase-field system, *SIAM Journal on Control and Optimization*, vol. 55, no. 3 (2017), 2108-2133. [\[https://doi.org/10.1137/15M102424X\]](https://doi.org/10.1137/15M102424X) 29 June 2017 [ISSN Electronic: 1095-7138 Print: 0363-0129] **FI=1.45, SRI=1.933**. ISSN: 0363-0129
8. **V. Barbu**, The steepest descent algorithm in Wasserstein metric for the sandpile model of self-organized criticality, *SIAM Journal on Control and Optimization*, vol. 55, no. 1 (2017), 413-428. **FI=1.45, SRI=1.933**. ISSN: 0363-0129.
9. **V. Barbu**, M. Rockner, A splitting algorithm for stochastic partial differential equations driven by linear multiplicative noise, *Stoch PDE: Anal Comp.*, (2017), pp. 1-15. <https://doi.org/10.1007/s40072-017-0094-5>
10. **D. Ieșan**, On the nonlinear theory of thermoviscoelastic materials with voids. *Journal of Elasticity*, 128 (2017), 1-16. (**FI:1.100; SRI: 2.044**)
11. **D. Ieșan**, R. Quintanilla, Thermal stresses in chiral plates, *Journal of Thermal Stresses*, 40 (2017), 344 -362. (**FI =0.593; SRI: 1.000**)
12. **D. Ieșan**, Chiral effects in piezoelectricity, *Mechanics Research Communications*, 79 (2017), 24–31. (**FI=0.686; SRI:1.068**)
13. **D. Ieșan**, Thermoelastic deformation of reinforced chiral cylinders, *Acta Mechanica*, 228 (2017), 3901-3922. (**FI:1.851 ; SRI: 1024**).
14. **C. Zălinescu**, On D.Y. Gao and X. Lu paper "On the extrema of a nonconvex functional with double-well potential in 1D", *Z. Angew. Math. Phys.* (2017), 68:72. **FI=1.687**
15. **S. Anița**, V. Capasso, A.-M. Mosneagu, Regional control in optimal harvesting problems of population dynamics, *Nonlinear Analysis*, 147 (decembrie 2016), 191-212, ISI, **FI=1.192, SRI=1.148**.
16. **S. Anița**, V. Capasso, H. Kunze, D. La Torre, Optimizing environmental taxation on a spatially structured economic growth model including pollution diffusion, *Vietnam Journal of Mathematics*, 45 (1) (2017), 199-206, ISI.

17. V. Capasso, **S. Anița**, The interplay between models and public health policies: regional control for a class of spatially structured epidemics (think globally, act locally), *Mathematical Biosciences and Engineering*, May 2017, online, 20 pages, ISI, **FI=1.035, SRI=0.679**.
18. O. Benniche, **O. Carjă**, Approximate and Near Weak Invariance for Nonautonomous Differential Inclusions, *Journal Of Dynamical And Control Systems*, 23(2017), 249-268, **FI=0,708; SRI=0,543**
19. O. Benniche, **O. Carjă**, Viability for quasi-autonomous semilinear evolution inclusions, *Mediterranean Journal of Mathematics*, 13 (6) (2016), 4187-4210. Published: dec. 2016, **FI=0,868; SRI=0,351**.
20. E. Pardoux, **A. Rășcanu**, Continuity of the Feynman-Kac formula for a generalized parabolic equation, *Stochastics*, 89 (5) (2017), 726-752. ISI. **FI=0.673, SRI=0.951**.
21. **A. Rășcanu**, E. Rothenstein, Obstacle problems for parabolic SDEs with Hölder continuous diffusion: From weak to strong solutions, *Journal of Mathematical Analysis and Applications*, 450 (1) (2017), 647-669. ISI. **FI=1.064, SRI=1.136**.
22. L. Maticiuc, **A. Rășcanu**, L. Slominski, Multivalued monotone stochastic differential equations with jumps, *Stochastics and Dynamics*, 17 (3) (2017), 25 pp., ISI. **FI=0.820, SRI=0.846**.
23. **Stan Chiriță**, Michele Ciarletta, Vincenzo Tibullo, Qualitative properties of solutions in the time differential dual-phase-lag model of heat conduction, *Applied Mathematical Modelling*, vol. 50, (2017), pag. 380—393 ISI, **FI=2,350 , SRI=2,204**.
24. **Stan Chiriță**, Michele Ciarletta, Vincenzo Tibullo, On the thermomechanical consistency of the time differential dual-phase-lag models of heat conduction, *International Journal of Heat and Mass Transfer*, vol. 114, (2017), pag. 277—285 ISI, **FI=3.458, SRI=2.310**.
25. **Stamate Elena-Cristina**, Anca Croitoru, The general Pettis-Sugeno integral of vector multi-functions relative to a vector fuzzy submeasure, *Fuzzy Sets and Systems*, 327 (C) (2017), 123-126. **FI=2.718, SRI=1.506**.
26. **I.D. Ghiba**, R.J. Martin, P. Neff. [Rank-one convexity implies polyconvexity in isotropic planar incompressible elasticity](#), *Journal de Mathématiques Pures et Appliquées*, acceptat 2017. **ISI, FI=1.802 , SRI=2.050**
27. R.J. Martin, **I.D. Ghiba**, P. Neff. Rank-one convexity implies polyconvexity for isotropic, objective and isochoric elastic energies in the two-dimensional case, *Proceedings of the Royal Society of Edinburgh, Section: A Mathematics* 147 (3) (2017), 571-597. **ISI, FI=1.158, SRI=1.166**
28. M. V. d'Agostino, G. Barbagallo, **I.D. Ghiba**, A. Madeo, P. Neff, A panorama of dispersion curves for the weighted isotropic relaxed micromorphic model, *ZAMM*, sub tipar, doi: 10.1002/zamm.201600227, 2017. **ISI, FI=1.332 , SRI=0.555**
29. I. Munch, P. Neff, A. Madeo, **I.D. Ghiba**, The modified indeterminate couple stress model: Why Yang et al.'s arguments motivating a symmetric couple stress tensor contain a gap and why the couple stress tensor may be chosen symmetric nevertheless, *ZAMM*, sub tipar, doi: 10.1002/zamm.201600107, 2017. **ISI, FI=1.332 , SRI=0.555**
30. G. Barbagallo, M.V. D'Agostino, R. Abreu, **I.D. Ghiba**, A. Madeo, P. Neff, Transparent anisotropy for the relaxed micromorphic model: macroscopic consistency conditions and long wave length asymptotics, *International Journal of Solids and Structures*, 120(2017), 7-30. **ISI, FI=2.760 , SRI=1.017**
31. **I.D. Ghiba**, P. Neff, A. Madeo, I. Munch. A variant of the linear isotropic indeterminate couple stress model with symmetric local force-stress, symmetric nonlocal force-stress, symmetric couple-stresses and complete traction boundary conditions, *Mathematics and Mechanics of Solids* 22(2017), 1221-1266. **ISI, FI=2.953 , SRI=0.888**

32. P. Neff, A. Madeo, G. Barbagallo, M.V. D'Agostino, R. Abreu, **I.D. Ghiba**. Real wave propagation in the isotropic-relaxed micromorphic model, *Proceedings of the Royal Society A* 473, doi: 10.1098/rspa.2016.0790, 2017. **ISI, FI=2.146 , SRI=1.037**
33. **Ionut Munteanu**, Stabilization of stochastic parabolic equations with boundary-noise and boundary-control. *J. Math. Anal. Appl.* 449 (2017), no. 1, 829-842. **FI=1,064, SRI=1.125**
34. **Ionut Munteanu**, Stabilization of a 3-D periodic channel flow by explicit normal boundary feedbacks. *J. Dyn. Control Syst.* 23 (2017), no. 2, 387-403. **FI=0.708, SRI=0.832**
35. **Ionut Munteanu**, Stabilization of parabolic semilinear equations. *Internat. J. Control* 90 (2017), no. 5, 1063-1076. **FI=2,208, SRI=1.176**
36. Tudor Barbu, **Ionut Munteanu**, A nonlinear fourth-order diffusion-based model for image denoising and restoration, *Proceedings of the Romanian Academy, Series A, Volume 18, Number 2/2017*, pp. 108-115 **FI=1,6, SRI= 0.429**
37. **Ionut Munteanu**, Boundary stabilization of a 2-D periodic MHD channel flow, by proportional feedbacks, *ESAIM COCV* 23(4), (2017), 1253-1266 **FI=1,54 , SRI= 1.709**

Articole non-ISI publicate în reviste din țară (B+) =

Cărți sau capitole de cărți publicate în străinătate = 1

1. A. Madeo, P. Neff, G. Barbagallo, M.V. D'Agostino, **I.D. Ghiba**. *A review on wave propagation modeling in band-gap metamaterials via enriched continuum models*. In F. dell'Isola, M. Sofonea and D. Steigmann (eds.), *Mathematical Modelling in Solid Mechanics*, Advanced Structured Materials, vol. 69, 2017, Springer, 89-105.

Comunicări prezentate la conferințe internaționale = 15

1. **Ioan I. Vrabie**, *A class of nonlocal semilinear delay evolutions*, CMSM4 2017, June 28-July 2, 2017, Chisinau, Republica Moldova.
2. **Ioan I. Vrabie**, *Semilinear delay differential equations subjected to nonlocal initial conditions*, Equadiff 2017, July 24-28, 2017, Bratislava, Slovakia.
3. **C. Zălinescu**, *On EVP type results for set-valued mappings*, Workshop on Current Trends in Applied Mathematics (CTAM), October, 26-29, 2017, Iași, Romania.
4. **C. Zălinescu**, *Series of convex functions with applications to Statistical Mechanics*, International Conference on Applied and Pure Mathematics (ICPM), Nov. 2-5, 2017, Iași, Romania.
5. **C. Zălinescu**, *Series of convex functions with applications to Statistical Mechanics*, International Conference on Analysis and Its Applications (ICAA-2017), Nov. 20-22, 2017, Aligarh, India.
6. **S. Anița**, *Regional control for population dynamics*, Control of Distributed Parameter Systems 2017, Bordeaux, France, 3-7 July, 2017. **O. Cârjă**, *A variational approach for the time optimal control problem*, Workshop on Current Trends in Applied Mathematics (CTAM), October, 26-29, 2017, Iași, Romania.
7. F. Cordini, L. Di Persio, L. Maticiuc, **A. Zălinescu**, *BSDEs with time-delayed generators in the study of path-dependent nonlinear Kolmogorov equations*, International Conference on Applied and Pure Mathematics (ICAPM 2017), 2-5 Noiembrie, Iasi, Romania.

8. **Stan Chiriță**, *On the high-order effects in the lagging behavior of heat transport*, Current Trends In Applied Mathematics, 26-29 Octombrie, 2017, Iasi.
9. **Marius Durea**, *Regularity and penalization in constrained vector optimization problems*, Current Trends in Applied Mathematics, 26-29 Octombrie 2017, Iasi, Romania.
10. **Stamate Cristina**, *Vector Equilibrium Problems*, CAIM 2017, septembrie 14-17, Iasi
11. **Stamate Cristina**, *Vector equilibrium problems and abstract economies*, Workshop: Current Trends in Applied Mathematics, 2017, octombrie 27-28, Iasi.
12. **I.D. Ghiba**, *A non-rank-one convexity result involving geodesically motivated logarithmic strain measures*, ISDMM, 26-29 June, Lyon, Franta, 2017.
13. **E.A. Melnig**, *Reaction-diffusion systems: controllability, stabilization and inverse problems*, International Conference on Applied and Pure Mathematics, 2-5 noiembrie 2017, Universitatea Politehnica Iasi.
14. **E.A. Melnig**, *Feedback stabilization with simultaneous control for a coupled parabolic system*, Current Trends in Applied Mathematics, 26-29 Octombrie 2017, Iasi, Romania.
15. **E.A. Melnig**, *Reaction-diffusion systems. Control and stabilization*, Workshop Geometry and PDE's, 12-15 iunie 2017, Universitatea de Vest din Timisoara.

Comunicări prezentate la conferințe naționale = 8

1. **S. Anița**, *Regional control in optimal harvesting*, Workshop on Applied Mathematics, Iasi, 4 April, 2017.
2. **S. Anița**, *Control regional pentru sisteme cu difuzie*, Conferinta nationala a SSMR, Botosani, 12-14 mai, 2017.
3. **C. Lefter**, *Controlled Schrodinger equations, Stabilization*. Conferința *Geometry and PDEs*. Timișoara, 13-14 iunie 2017.
4. **O. Cârjă**, *A variational approach for the time optimal control problem*, Workshop on Current Trends in Applied Mathematics (CTAM), October, 26-29, 2017, Iași, Romania.
5. **O. Cârjă**, *Probleme de controlabilitate si timp optimal*, Matematica între tradiție și provocările prezentului, 7-8 septembrie 2017, Craiova, Romania.
6. *A variational approach for the time optimal control problem*, Workshop on Current Trends in Applied Mathematics (CTAM), October, 26-29, 2017, Iași, Romania.
7. **I. Munteanu**, *Boundary stabilization of parabolic type equations by proportional feedbacks*, International Conference on Elliptic and Parabolic Problems, 22-26 mai 2017, Gaeta, Italia.
8. **E.A. Melnig**, *Inverse source problems for semilinear parabolic systems*, Zilele Universitatii "Al. I. Cuza" Iasi, 27-28 octombrie 2017.

Lucrări elaborate, trimise spre publicare = 20 articole

1. L.-I. Anița, **S. Anița**, V. Capasso, A.-M. Mosneagu, *Some regional control problems for population dynamics*, va apărea in Lecture Notes in Economics and Mathematical Systems, Springer (volume dedicated to V. Veliov).

2. **S. Anița**, V. Capasso, M. Lipnicka, A. Nowakowski, *Shape optimisation for a class of epidemic problems – sufficiency conditions*, Journal of Optimization, Theory and Applications, trimisa la publicat.
3. **S. Anița**, S. Behringer, A.-M. Mosneagu, T. Upmann, *Cournotian dynamics of spatially distributed renewable resources*, arXiv:1706.05930.
4. **D. Ieșan**, *Qualitative properties in strain gradient thermoelasticity with microtemperatures*, Mathematics and Mechanics of Solids, DOI: 10.1177/1081286516680860
5. **Ioan I. Vrabie**, A class of semilinear delay differential equations with nonlocal initial conditions, acceptată în *Dynamics of Partial Differential Equations*, ISI, FI=0.93.
6. **C. Lefter**, **A. Melnig**, *Feedback stabilization with one simultaneous control for systems of parabolic equations*.
7. **C. Lefter**, **A. Melnig**, *Stability in inverse source problems for semilinear parabolic systems*.
8. **C. Zălinescu**, *On Lagrange multipliers in convex entropy minimization*, trimisă spre publicare.
9. L. Maticiuc, **A. Rășcanu**, *Variational approach of multivalued backward stochastic differential equations*.
10. **M. Durea**, R. Strugariu, *Optimality conditions and a barrier method in optimization with convex geometric constraint*.
11. **M. Durea**, A.-E. Florea, R. Strugariu, *Henig proper efficiency in vector optimization with variable ordering structure*.
12. F. Cordoni, L. Di Persio, L. Maticiuc, **A. Zălinescu**, *A stochastic approach to path-dependent nonlinear Kolmogorov equations via BSDEs with time--delayed generators and applications to finance* (trimisă spre publicare în Stochastic Processes and Their Applications).
13. S. Bonaccorsi, **A. Zălinescu**, *Maximum principle for an optimal control problem associated to a SPDE with nonlinear boundary conditions* (trimisă spre publicare în Journal of Mathematical Analysis and Applications).
14. **C. Stamate**, *Equilibrium theory for abstract economies-noncompact case*
15. **C. Stamate**, *Equilibrium theory for abstract economies with m-majorized multifunctions*.
16. **C. Stamate**, *Existence of Walrasian equilibria for vector exchange economy*.
17. **C. Stamate**, *Vector equilibrium problems and abstract economies*.
18. **C.G. Popa**, **T. Havârneanu**, *Exact internal controllability of the three-dimensional magnetohydrodynamic equations by control action exerted through fewer scalar functions than six possible*, trimisă spre publicare.
19. **G. Lițcanu**, *Mathematical structure of the immune response dynamics*.
20. **G. Lițcanu**, *Blow-up dynamics in a parabolic-degenerate system*.

Granturi derulate prin institut = 2

3. **PN-III-P4-ID-PCE-2016-0011**. *Analiza si controlul ecuatiilor stochastice Schrodinger si a unor modele de difuzie neliniara*. Director de proiect: **V. Barbu**. Membri în echipă: **I. Munteanu**, **A.E. Melnig**. Contract 49/2017, durata 30 luni (12.07.2017-31.12.2019). Finanțator: UEFISCDI. Valoare totala: 850.000,00 lei. Valoare 2017: 246.330,00 lei.
4. **PN-II-RU-TE-2014-4-0083**. Membru în echipă: **I. Munteanu**.

Premii = -

Manifestări științifice organizate de institut = 3

1. Simpozionul aniversar: [*Academicianul Radu Miron la 90 de ani*](#), 17 octombrie 2017.
2. [*Current Trends in Applied Mathematics*](#), workshop cu participare internațională, 27-28 octombrie 2017, cu prilejul Zilelor Academice.
3. [*International Conference on Applied and Pure Mathematics*](#), 2-5 noiembrie 2017.

Citări

1. **V. Barbu: 180**
2. **C. Zălinescu: 130**
3. **D. Ieșan: 104**
4. **I.I. Vrabie: 65**
5. **A. Rășcanu: 117**
6. **S. Anița: 50**
7. **A. Zălinescu: 2**
8. **S. Chiriță: 54**
9. **C.G. Lefter: 22**
10. **O. Carja: 23**
11. **G. Lițcanu: 4**
12. **I.D. Ghiba: 71**

TOTAL = 822

DIRECTOR,

Prof.dr. Cătălin-George Lefter