

## Institutul de Calcul "Tiberiu Popoviciu"

### Raport de activitate 2021, cu detalii

#### Lucrări ISI în jurnale din străinătate

1. E. Cătinaș, *How many steps still left to  $x^*$ ?*, SIAM Rev. 63 (2021) no. 3, pp. 585–624, <http://doi.org/10.1137/19M1244858> (**Impact Factor IF 2020: 10.7, SRI: 9.8**)
2. N. Suci, D. Illiano, A. Prechtel, F.A. Radu, *Global random walk solvers for fully coupled flow and transport in saturated/unsaturated porous media*, Adv. Water Res., 152 (2021), 103935, <https://doi.org/10.1016/j.advwatres.2021.103935> (**IF 4.5, SRI 2.4**)
3. O. Agratini, S.G. Gal, *On Landau-type approximation operators*, Mediterr. J. Math., **18** (2021) art. no. 64, <https://doi.org/10.1007/s00009-021-01712-w> (**IF 1.4, SRI 0.7**)
4. O. Agratini, *Approximation properties of a family of integral type operators*, Positivity, **25** (2021), 97–108, <https://doi.org/10.1007/s11117-020-00752-y> (**IF 1.0, SRI 0.6**)
5. O. Agratini, A. Aral, *Approximation of some classes of functions by Landau type operators*, Results Math., **76** (2021) art. no. 12, doi: 10.1007/s00025-020-01319-9 (**IF 1.1, SRI 0.7**)
6. U. Abel, O. Agratini, *On the Durrmeyer-type variant and generalizations of Lototsky-Bernstein operators*, Symmetry, 13 (2021) no. 10, art. no. 1841, <https://doi.org/10.3390/sym13101841> (**IF 2.7, SRI 0.5**)
7. A. Violel, C.D. Alecsa, T.O. Pința, *Asymptotic analysis of a structure-preserving integrator for damped Hamiltonian systems*, Discrete & Continuous Dynamical Systems, 41 (2021) 7, 3319–3341, doi: 10.3934/dcds.2020407 (**IF 1.3, SRI 1.4**)
8. C.D. Alecsa, S.C. László, T. Pința, *An extension of the second order dynamical system that models Nesterov's convex gradient method*, Appl. Math. Optim., **84** (2021), pp. 1687–1716. doi: 10.1007/s00245-020-09692-1 (**IF 3.5, SRI 2.1**)
9. I.S. Haplea, L.G. Parajdi, R. Precup, *On the controllability of a system modeling cell dynamics related to leukemia*, Symmetry, 13 (2021), art. id. 1867, <https://doi.org/10.3390/sym13101867> (17 pp.) (**IF 2.7, SRI 0.5**)
10. C.I. Gheorghiu, *Accurate spectral collocation computations of high order eigenvalues for singular Schrödinger equations-revisited*, Symmetry, **13** (2021) 5, <https://doi.org/10.3390/sym13050761> (**IF 2.7, SRI 0.5**)
11. C.I. Gheorghiu, *Accurate spectral collocation solutions to 2nd-order Sturm–Liouville problems*, Symmetry, **13** (2021), art. id. 385, doi: 10.3390/sym13030385 (**IF 2.7, SRI 0.5**)
12. A. Novac, D. Otrocol, D. Popa, *Ulam stability of a linear difference equation in locally convex spaces*, Results Math., **76**, 33 (2021). <https://doi.org/10.1007/s00025-021-01344-2> (**IF 1.1, SRI 0.7**)
13. V. Ilea, D. Otrocol, *On a Volterra integral equation with delay, via  $w$ -distances*, Mathematics **9** (2021), art. id. 2341, 8 pp., <https://doi.org/10.3390/math9182341> (**IF 2.2, SRI 0.5**)

#### Lucrări ISI în jurnale din țară

1. O. Agratini, O. Dogru, Kantorovich-type operators associated with a variant of Jain operators, Stud. Univ. Babeș-Bolyai Math. 66 (2021) no. 2, 279–288, doi: 10.24193/subbbmath.2021.2.04 (JCI 0.39)
2. V. Ilea, D. Otrocol, Functional differential equations with maxima, via step by step contraction principle, Carpathian J. Math., 37 (2021) no. 2, pp. 195–202, DOI: 10.37193/CJM.2021.02.05 (**IF 1.7, SRI 0.6**)

Lucrări în reviste BDI/preprint publicate 2021

1. C. I. Gheorghiu, Accurate spectral collocation computation of high order eigenvalues for singular Schrödinger equations, *Computation*, 9 (2021) 2, 19 pp.  
<https://doi.org/10.3390/computation9010002>
2. N. Suci, F.A. Radu, Global random walk solvers for reactive transport and biodegradation processes in heterogeneous porous media, Arxiv: 2107.08745, 2021,  
<https://arxiv.org/pdf/2107.08745.pdf>

## 2. Cărți/capitole -

### Carte:

1. M. Nechita, Unique continuation problems and stabilised finite element methods, Casa Cărții de Știință, Cluj-Napoca, Romania, 124 pp., ISBN: 978-606-17-1816-0

### Capitol:

2. N. Suci, Global Random Walk Solutions for Flow and Transport in Porous Media, in: F.J. Vermolen, C. Vuik (eds.), *Numerical Mathematics and Advanced Applications ENUMATH 2019, Lecture Notes in Computational Science and Engineering*, vol 139. Springer, Cham, pp. 939-947, doi: [https://doi.org/10.1007/978-3-030-55874-1\\_93](https://doi.org/10.1007/978-3-030-55874-1_93)

## 3. Premii

N. Suci: premiul "Spiru Haret" al Academiei Române, pentru monografia *Diffusion in Random Fields. Application to Transport in Groundwater*, Springer/Birkhauser, 2019.

## 4. Citări în 2021

Total: **122**

## 5. Conferințe

Participări la conferințe internaționale

- Suci, N, Iliano, D., Prechtel, A., Radu, F.A., *Global random walk solvers for fully coupled flow and transport in saturated/unsaturated porous media*, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-1941, <https://doi.org/10.5194/egusphere-egu21-1941>.
- Suci, N., Radu, F.A., *Global random walk solvers for flow and multi-component reactive transport in heterogeneous porous media*, InterPore2021 Online Conference, July 2021, <http://dx.doi.org/10.1010.13140/RG.2.2.36165.58084>
- O. Agratini, International Conference "Recent Developments in Mathematical Analysis", Bari, Italy, September 22–23, 2021, <https://www.dm.uniba.it/ricerca/convegni/2021/redima>.
- A. Pop, M. Crăciun and M. Barbosu, *Light Travel Time Effect – from Fourier parameters to orbital elements through different approaches*, Viewpoints in Astronomy, Astrophysics, Space and Planetary Sciences, International Conference 28-29 October 2021, Cluj Academic Days 2021.
- M. Nechita, *Unique continuation problems and stabilised finite element methods*, Control in times of crisis, 21.01.2021. <http://ctcseminar.mat.utfsm.cl/index-2020-2021.html>

- M. Nechita, *Finite element regularization for convection-dominated data assimilation problems*, 29th IFIP TC7 Conference on system modelling and optimization, 02.09.2021, [https://modemat.epn.edu.ec/ifip\\_tc7\\_2021/files/book\\_of\\_abstracts.pdf](https://modemat.epn.edu.ec/ifip_tc7_2021/files/book_of_abstracts.pdf)
- D. Otrocol, V. Ilea, *Functional differential equations with maxima, via step by step contraction principle*, Approximation Theory and Applications (MS – ID 78), 8th European Congress of Mathematics, Portoroz, Slovenia, 20-26 iunie 2021, <https://8ecm.si/system/admin/abstracts/pdfs/000/002/032/original/diana-otrocol.pdf?1620802238>

#### Participări la conferințe naționale

- E. Căținaș, *Ordine de convergență, comparații asimptotice, metode iterative elementare*, Conferința Cercetării Științifice din Academia Română (CCSAR-2021), 22-23 noiembrie 2021, <https://acad.ro/com2021/doc/docCCSAR/CCSAR-Program-Ziua2-Panel3-vf.pdf>.
- N. Suciu, *Metode de tip "random walk" pentru transport reactiv în medii poroase - avantaje și limitări*, Conferința Cercetării Științifice din Academia Română (CCSAR-2021), 22-23 noiembrie 2021, <https://acad.ro/com2021/doc/docCCSAR/CCSAR-Program-Ziua2-Panel3-vf.pdf>.
- M. Nechita, *Probleme dominate de convecție: regularizarea asimilării datelor folosind elemente finite*, Conferința Cercetării Științifice din Academia Română (CCSAR-2021), 22-23 noiembrie 2021, <https://acad.ro/com2021/doc/docCCSAR/CCSAR-Program-Ziua2-Panel3-vf.pdf>.

Următoarele titluri au fost comunicate la simpozionul 70 de ani de la înființarea Institutului de Calcul „Tiberiu Popoviciu” (28 octombrie, 2021):

- O. Agratini, *On Landau-type approximation operators*.
- E. Căținaș, *How many steps still left to  $x^*$ ?*
- N. Suciu, F.A. Radu, *Random walk methods for coupled flow and reactive transport in porous media*.
- C.-I. Gheorghiu, *On the efficiency of Chebfun system in solving genuinely nonlinear BVPs*.
- D. Otrocol, *Differential equations with maxima, via step by step contraction principle*.
- M. Crăciun, A. Pop, *ESC method as a tool for differential diagnosis of variability phenomena: periodicity versus quasi-periodicity*.
- I. Boros, *An overview of spectral collocation methods which are modified to work in arbitrary precision*.
- M. Nechita, *Unique continuation problems and stabilised finite element methods*.
- E. Căținaș, A. Stan, *On the convergence orders*.

#### Alte activități/rezultate:

- Grantul internațional SU 415/4-1 (<https://gepris.dfg.de/gepris/projekt/405338726>) obținut de N. Suciu de la Fundatia Germana de Cercetare (Deutsche Forschungsgemeinschaft), pentru proiectul "Integrated global random walk model for reactive transport in groundwater adapted to measurement spatio-temporal scales" (01.10.2018-30.09.2021), la Universitatea Erlangen-Nuernberg.
- Dl. dr. rer. nat. habil. N. Suciu are **H-index 13**, conform ISI/Clarivate (<https://publons.com/researcher/2061433/nicolae-suciu/>)