

CURRICULUM VITAE



PERSONAL INFORMATION

Name **Simona Ionica ROATEȘI**
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Nationality Romanian

Date of birth 01.09.1961

WORK EXPERIENCE

- Dates (from – to)
 - Name and address of employer
 - Type of business or sector
 - Occupation or position held
 - Main activities and responsibilities
- 2010 – present:** *Professor*, Military Technical Academy
2005 – 2010: *Associate professor (Reader)*, Technical University of Civil Engineering Bucharest, Department of Mathematics and Informatics
2003 – 2005: *Lecturer*, Technical University of Civil Engineering Bucharest, Department of Mathematics and Informatics
1997 – 2003: *Senior researcher III*, University of Bucharest, Faculty of Mathematics, Department of Mechanics
1991 – 1997: *Researcher*, University of Bucharest, Faculty of Mathematics, Department of Mechanics
1987 – 1991: *Researcher*, Research Institute of Environment Engineering, Bucharest
1985 – 1987: *Mathematician*, Computer Center, Drobeta Turnu-Severin

EDUCATION

- Name and type of organization providing education
 - Principal subjects/occupational skills covered
 - Title of qualification awarded
- 1997** - University of Bucharest, Faculty of Mathematics, *Ph.D.* in Mathematics with the thesis: *Numerical methods in mathematical modeling of mining supports* (Acad. Professor Nicolae Cristescu's coordination).
1985 - University of Bucharest, Faculty of Mathematics, Department of Mechanics, Specialization of Solid Mechanics, *M.Phil., Mathematician Diploma*; **governmental assignment** to Research Institute of Environment Engineering, Bucharest.

TRAINING

Doctoral grants :

- Dates (from – to)
- Name and type of organization providing training
- Principal subjects/occupational skills covered

1993 (3 months), University of Lille, France, at Prof. J. Shao for implementation of an anisotropic model in finite element code (Collaboration with Prof. Dragon University of Poitiers).

1993 (1 week) course *Visco-plastic behaviour of geomaterials* at CISM-International Centre for Mechanical Sciences Udine, Italy, coordinators G. Gioda (Italy), N. Cristescu (SUA).

Post-doctoral grants, visiting positions:

2007 (1 week), research stage, University of Birmingham, UK, at Prof.

A.H.Chan, in *Numerical methods in chemoporoelasticity*.

2007 (1 week), research stage, University of Lublin, Poland at Prof. Zbigniew Suchorab, in *Mathematical modeling for chemoporoelasticity*.

2006 (1 week), research stage, Ecole Normale Supérieure de Cachan, Paris, at Prof. Rodrigue Desmorat, in *Physico-chemical interactions in porous media*.

2005 (1 week), research stage, University of Ruse, Bulgaria, at Prof. Emilya Velikova, in *Constitutive model for a chemically active shale*.

2000-2001 (1 year), research stage, Laboratoire Central de Ponts et Chaussées LCPC, Paris, at dr. Ph. Mestat, *Finite Element Method in geotechnique*.

1998 – (2 weeks), research stage, University of Birmingham, UK, at Prof. A.H.Chan, *Numerical methods in geotechnique*.

NATIVE LANGUAGE

ROMANIAN

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

English, French
English, French
English, French

ORGANISATIONAL SKILLS AND COMPETENCES

A) International research grants

1. *Numerical Methods in geotechnics*, University of Glasgow, funded by British Council, 1994-1995, (participants: University Bucharest (with S. Roateși, project director and N.D.Cristescu, O.Simionescu, I.Molnar, I.Paraschiv) and University of Glasgow with D.M. Wood, A.H.C. Chan), **project manager**.

2. *Coupling of physico-chemical exchanges and poromechanical behaviour of clays*, funded by British Council France and TotalFinaElf, Paris, run by Dr. Dominique Fourmaintraux, (participants: E. Detournay, University of Minnesota, S. Roateși, University of Bucharest, J. Sarout, University of Minnesota, H. Tan, Simecsol, Paris), 2001-2003, **member of the project team**.

3. *The Finite Element Method in geomechanics*, **TEMPUS**

Project JEP 2779/91 with European Union (participants: Ecole Polytechnique - Palaiseau, France; Politecnico di Milano, Italy; University of Bucharest, Romania, project manager Acad. N. D. Cristescu), 1992, **member of the project team.**

B) National research grants

1. *Simulation and modeling of telocytes behavior in signaling and tissue regeneration processes*, TELOSIM, PNCDI II, Partnership in priority areas, 2013-2017, MTA **partner project manager.**
2. *Modeling of static characteristics and their use for calculation of electrical energy supply*, Energy Research and Modernizing Institute ICEMENERG, 2009, **project manager.**
3. *Mathematical method of qualitative assessment of a system state*, Research Institute on Electrotechnics ICPE, 2003, **project manager.**
4. *Mathematical model for damage of polymeric materials subjected to tracking trials*, National Institute of Research and Study on Electricity and Electronics INCSEE, 2002, **project manager.**
5. *Chemical effects in porous media behaviour. Applications in stability problems of drilling petroleum borehole*, National Council of Research and Academic Education CNCSIS, 2000-2001, **project manager.**
6. *New theoretical approach and applications in mathematical modeling of salt* – CNCSU, 1999-2000, **project manager.**
7. *Numerical implementation of geotechnical problems* – Ministry of Research and Technology MCT, 1995-1998, **project manager.**
8. *Mobile system for the fight against the fire in open spaces*, The National Center of Program Management, CNMP, collaboration with Polytechnic University of Bucharest, 2008-2011, **member of the project team.**
9. *Research on correlation of mathematical and engineering disciplines in view of the integration in the European academic education and research stimulation*, National Council of Research and Academic Education CNCSIS, 2005, **member of the project team.**
10. *Implementation in finite element code of different constitutive laws with applications in mining and petroleum engineering* – The Education Ministry, 1994-1998, **member of the project team.**
11. *Expert program for settlements calculation* - Research Institute of Environment Engineering, Bucharest -ICIM, 1993, **member of the project team.**
12. *Expert system for evaluation of civil engineering impact on the environment* - Research Institute of Environment Engineering, Bucharest - ICIM, 1991-1992, **member of the project team.**

TECHNICAL SKILLS

Informatics skills: Unix, FORTRAN, C++, Word, Excel, Maple,

AND COMPETENCES

Mathcad

POSTGRADUATED COURSES

1. FORTRAN77 Programming, Informatics Research Institute Bucharest (ICI), 1987
2. C Language and DOS Operating System, Informatics Research Institute Bucharest (ICI), 1989
3. C Programming, Informatics Research Institute Bucharest (ICI), 1989
4. Postgraduate course *Firm Management* from the Academy of Economic Study Bucharest in 1999
5. Postgraduate course *Financial Analyses and Risk* from Romanian Banking Institute, (IBR-RBI), Bucharest in 2003.

DRIVING LICENCE

Yes

ADDITIONAL INFORMATION

PRESENTATIONS AT INTERNATIONAL EVENTS, INVITED LECTURER

1. *A semianalytical solution for a well drilled in a chemical active shale* – International Conference – Trends and challenges in applied mathematics, ICTCAM2007, Bucharest, 2007.
2. *INVITED LECTURER, Numerical methods in chemo-poroelasticity*- University of Birmingham, UK, 2007.
3. *Mathematical Modeling of Coupled chemical-mechanical interactions for shale*–6-th Congr. of Romanian Mathematicians, Bucharest, 2007.
4. *INVITED LECTURER, Mathematical modeling for chemo-poroelasticity*, 2007, Univ. of Lublin, Poland.
5. *INVITED LECTURER, Physico-chemical interactions in porous media*, 2006, Ecole Normale Supérieure de Cachan, Paris, France.
6. *Modeling of mechanical-chemical coupling in porous media*–8-th French-Romanian Colloq. of applied maths., Chambéry, France, 2006.
7. *INVITED LECTURER, A constitutive model for chemically active shale*, 2005, Univ. of Ruse, Bulgaria.
8. *Numerical analysis of the evolution of a circular tunnel in a viscoplastic rock mass with inelastic lining*, ECCM Munich, 1999.
9. *A numerical solution for a viscoplastic constitutive equation for rock salt*, MECASALT 5, Bucharest, Romania, 1999.
10. *A finite element model for a lined tunnel in a viscoplastic rock mass*, 3rd EUROMECH Solid Mech. Conference, Stockholm, 1998.
11. *Stress concentration of the interaction of 2 square holes with rounded corners-comparative study*, ICIAM95, Hamburg, Germany, 1995.

TITLES, MEMBERSHIP TO DIFFERENT ASSOCIATIONS

2007-2013 Research Fellow Title awarded by University of Birmingham, UK

1995- present Member GAMM - Gesellschaft für Angewandte Mathematik und Mechanik (German association for Applied Mathematics and Mechanics)

1995- present Member EUROMECH European Mechanics Soc.

Selective publication list

a) Books

1. S. Marzavan, **S. Roateși**, I. Sprințu – *Linear algebra with engineering applications*, Military Technical Academy Press, Bucharest, 264 pages, 2015.
2. S. Roateși – *Finite Element Analysis for the Problem of Tunnel Excavation Successive Phases*, Chapter *Finite Element Analysis - New Trends and Developments/Book 2* (ISBN: 980-953-307-496-7), pp 301-332, InTech, Croatia, oct. 2012
3. S. Roateși, Silvia Marzavan – *Analytical and differential geometry – applications and problems*, Military Technical Academy Press, Bucharest, 240 pages, 2012.
4. **S. Roateși**, Silvia Marzavan – *Problems of linear algebra in engineering*, Military Technical Academy Press, Bucharest, 250 pages, 2011.
5. S. Roateși – *Numerical methods – theoretical elements and applications*, Military Technical Academy Press, Bucharest, 250 pages, 2010.
6. S. Roateși – *Analytical and differential geometry*, Military Technical Academy Press, Bucharest, 250 pages, 2009.
7. **S. Roateși**, M. Ariciuc – *Linear algebra and analytical geometry*, Matrix-Rom Press, Bucharest, 190 pages, 2008.
8. S. Roateși – *C Language programming*, Matrix-Rom Press, Buc., 150 pages, 2005.
9. S. Roateși – *Mathematical modeling and finite element problems in tunnel calculation*, Romanian Academy Press, Bucharest, 150 pages, 2005.

b) Publications

1. **S. Roateși** – *Analytical and Numerical Approach For Tunnel Face Advance In A Viscoplastic Rocks Mass*, Int J Rock Mech Min Sci, Elsevier, 70C, pp. 123-132, September 2014 (*ISI*), IF 2.268.
2. **S. Roateși** - *Finite Element Analysis of Effect of Lining on damage in viscoplastic rocks*, Computers and Geotechnics, Elsevier, Volume 49, pp. 1-6, 2013 (*ISI*) IF 2.358.
3. **S. Roateși** - *On the variational formulation of a chemically active shale constitutive model*, Proceedings of the Romanian Academy, *Series A, Volume 11, Number 2*, pp. 116–124, 2010 (*ISI*).
4. **S. Roateși** - *Analysis of the successive phases of a tunnel excavation with support mounting*, Proceedings of the Romanian Academy, *Series A, Volume 11, No. 1*, pp. 11–18, 2010 (*ISI*).
5. **S. Roateși**, *A mathematical model for excavation and support of a tunnel in viscoplastic rock mass*, Scientific Bulletin–Mathematical modeling in Civil Eng., No.1, pp.57-64, 2006.
6. **S. Roateși**, M. Ariciuc – *Study on depth dependency in tunnel calculation*, Scientific Bulletin, UTCB, 1, pp.16-30, 2005.
7. E. Detournay, L. Dormieux, E. Lemarchand, **S. Roateși**, D. Fourmaintraux - *Stability of a borehole drilled in a chemically active rock*, BIOT2002, Poromechanics II, Balkema Publ., pp.171-179, 2002.
8. Ph.A. Charlez, **S. Roateși** - *A fully analytical solution of the well-bore stability problem under undrained conditions using a linearized Cam-Clay model*, Oil&Gas Science and Technology-Rev.IFP, Paris, Vol.54, No.5, pp.551-563, 1999, **Reviewed in SCOPUS. (ISI)** IF 1.184.
9. **S. Roateși**, A.H.Chan - *Comparison of FE analysis and analytical solution for underground openings problems in viscoplastic rock mass*, Rev.Roum. Sci. Techn.- Mec.Appl., Vol. 43, No.2, pp.327-344, 1998.
10. A.H.Chan, **S. Roateși** - *Finite element approach in viscoplasticity for Cristescu saturated sand model*, Rev. Roum. Sci. Techn.-Mec.Appl., Vol. 42, No.5-6, pp. 451-465, 1997, **Reviewed in CSA Illumina.**
11. **S. Roateși** - *The face tunnel influence in the analysis of a circular tunnel with a time-dependent behaviour* - Rev.Roum.Sci.Tech. Mec.Appl., Vol. 41, no 3-4, pp. 247-263, 1996.
12. **S. Roateși** - *Griffith Type Failure for Rocks*, University of Bucharest Annals, pp.49-59, 1996, **Reviewed in Zbl. 0894.73119.**
13. O.Simionescu, **S. Roateși** - *Stress Concentration of the Interaction of Two Square Holes with Rounded Corners - A Comparative study* - ZAMM, ICIAM, Hamburg, Vol.5, pp.479-480,1995), **Reviewed in SCOPUS, Reviewed in Zbl. 0925.73080, (ISI)** . IF 1.293.

c) Presentations in international events (with ISSN or ISBN)

1. I. Roateși, **S. Roateși** - Application of numerical modeling in dental implantology biomechanics, American Institute of Physics (AIP) Conference Proceedings VOL. 2116, 370008; <https://doi.org/10.1063/1.5114381>, **2019 (ISI)**.
2. I. Roateși, **S. Roateși** – *Numerical FEM Model in Dental Implant Prosthetics*, American Institute of Physics (AIP) Conference Proceedings 2017, VOL. 1978, UNSP 390008-1; <https://doi.org/10.1063/1.5043991>, **2018 (ISI)**.
3. **S. Roateși**, Amado Stefan, Dragos Cretoiu, Tudor Savopol, Sanda Cretoiu - *Semi-analytical Solution of Telopodes Elongation in the Case of Behavior Modeling of Living Cells of Telocytes Type*, American Institute of Physics (AIP) Conference Proceedings 2017, VOL. 1978, 390007-1; <https://doi.org/10.1063/1.5043991>, **2018 (ISI)**.
4. I. Roateși, **S. Roateși** - *Numerical FEM Modeling in Dental Implantology*, American Institute of Physics (AIP) Proceedings 2015, VOL. 1738, 350003; <http://doi.org/10.1063/1.4952126>, **2016 (ISI)**.
5. I. Roateși, **S. Roateși**, C. Rotaru, S. Crețoiu, D. Crețoiu - *Mathematical Model of Living Cells Behavior: Case of Telocytes*, American Institute of Physics (AIP) Proceedings 2015, VOL. 1738, 350002; <http://doi.org/10.1063/1.4952125>, **2016 (ISI)**.
6. C. Rotaru, **S. Roateși**, I. Cîrciu – *Aircraft Engine Mathematical Model – Linear System Approach*, American Institute of Physics (AIP) Proceedings VOL. 1738, 290012; <http://doi.org/10.1063/1.4952084>, **2016 (ISI)**.
7. I. Roateși, **S. Roateși**, C. Rotaru - *FEM Analysis of One Element Prosthesis on Dental Implant*, Proceedings of International Conference on e-Health and Bioengineering, EHB 2015, Iasi, IEEE XPLORE pp. 1-4. doi: 10.1109/EHB.2015.7391353, **2015 (ISI)**.
8. C. Rotaru, **S. Roateși**, R.I. Edu et al – *Human Pilot's Dynamic Response Characteristics*, Proceedings of International Conference on e-Health and Bioengineering, EHB 2015, Iasi, IEEE XPLORE EMB, **2015 (ISI)**.
9. **S. Roateși** - *Analytical Approach of the Tunnel Face Effect on the Rock-Support Interface in Viscoelastic Rock Mass*, American Institute of Physics (AIP) Proceedings, **1558**, 1354 (2013), <https://doi.org/10.1063/1.4825764>, pp. 1355-1358, Oct., 2013, **(ISI)**.
10. I. Sprințu, **S. Roateși** - *Experimental Validation Of New Mathematical Solutions For Orthotropic Plates With Clamped Edges*, American Institute of Physics (AIP) Proceedings, 1558, 1359 (2013); <https://doi.org/10.1063/1.4825765>, pp. 1359-1362, Oct., 2013, **(ISI)**.
11. **S. Roateși** - *Equations Of State In Numerical Blast Modeling*, The 19th International Scientific Conference Knowledge-based Organization, KBO 13-15.06.2013, Sibiu, 2013
12. **S. Roateși** – *Energetic Damage Criterion For Elasto-Viscoplastic Materials In Finite Element Problems*, Proceedings of the 21st International Workshop on Computational Mechanics of Materials, Limerick, Ireland, pp. 22-23, 2011.
13. **S. Roateși** – *Energetic damage criterion for elasto-viscoplastic materials in finite element problems*, The 16th International Scientific Conference Knowledge-based Organization 25-27.11.2010, Sibiu, 2010 **(ISI)**.
14. **S. Roateși** – *Variational formulation in chemoporoelasticity*, Proceedings of the the 20th International Workshop on Computational Mechanics of Materials, published in Computational Materials Science, Loughborough, UK, 2010.
15. **S. Roateși** – *Parametric study by finite element method for the tunnel progressive advancement and lining mounting*, Joint International Conferences MEQAPS, EG, MN, WSEAS Publications, Brașov, 2009 **(ISI)**.
16. **S. Roateși** – *Simulation of the excavation tridimensional problem in viscoplastic media through analytical solutions*, The XV-th National Symposium for Construction Equipment, SINUC 2009, Bucharest, ISSN - 1842-6352, 17-18 December 2009.
17. **S. Roateși** – *A semianalytical solution for a well drilled in a chemical active shale* – International Conference – Trends and challenges in applied mathematics, ICTCAM2007, pp.73-74, Bucharest, 20-23 June 2007.
18. **S. Roateși** – *Mathematical Modeling of Coupled chemical-mechanical interactions for shale*–The 6-th Congress of Romanian Mathematicians, Bucharest, 28.06-4.07 2007, pp.134-135.
19. **S. Roateși** – *Physico-chemical interactions in porous media* – The 8-th French-Romanian Colloquium

of Applied Mathematics, Chambéry, 28 August-1 September 2006.

20. S. Roateși – *The face influence in tunnel calculation for time dependent medium*, The X-th National Symposium for Construction Equipment, SINUC 2006, Bucharest, ISSN - 1842-6352, 14-15 December 2006.

21. S. Roateși, M. Ariciuc – *Face influence in calculation of tunnels in viscoplastic rock mass*, The XI-th National Symposium for Construction Equipment, SINUC 2005, Bucharest, ISSN - 1842-6352, 15-16 December 2005.

22. S. Roateși – *Numerical applications for models with mixed effects in porous media mechanics*, The IX-th National Symposium for Construction Equipment, SINUC2003, 11-12 December 2003.

23. S. Roateși - *A numerical solution for a viscoplastic constitutive equation for rock salt* -Proc.of the 5th Conf. on mechanical behaviour of salt MECASALT5, Editors N.Cristescu,R.Hardy Jr.,O.Simionescu, Swets&Zeitlinger Publisher,Lisse,Holland, 2002.

24. T.Iftimie, S. Roateși - *The numerical modeling of the shield tunneling method: calibration with in-situ measurements*, AFTES – Journee d’etudees Internationales de Chambéry,21-24 oct. pp.39-45, 1996.

25. S. Roateși, O.Simionescu- *Numerical analysis of the evolution of a circular tunnel in a viscoplastic rock mass with inelastic lining*, Proc. ECCM99, Munchen,pp.262-263, 1999.

26. S. Roateși - *A finite element model for a lined tunnel in a viscoplastic rock mass* 3rd EUROMECH Solid Mech.Conference, Stockholm, pp. 170-171, 18-22 August, 1998.

27. S. Roateși - *A finite element model for underground openings in a viscoplastic rock salt*, 13th Nat. Congr. of Applied Mechanics, Gainesville, USA, July, 1998.

28. S. Roateși - *Numerical Integration of a Viscoplastic Constitutive Equation for Geomaterials. Comparison with the Analytical Solution for step Creep* - The XVIIIth Conference of Solid Mechanics, Braşov, Romania, Bul. Vol. I, pp.31-38, 1994.

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