

# Dr. Ernestos Sarris

## Curriculum Vitae



### PERSONAL INFORMATION

**Address:** Thessalonikis 6, Agios Pavlos,  
Nicosia, Cyprus, Europe. P.O.Box 2363.

**E-mail:** [esarris@geo.auth.gr](mailto:esarris@geo.auth.gr)

**Website:** <https://ernestossarris.com>

**Nationality:** Greek-Cypriot.

**Telephone:** 00357-99450772.

**Date of Birth:** October 8, 1978.

**Marital Status:** Married with 1 child (male).

### AREAS OF SPECIALIZATION

**Computational Methods:** Coupled finite elements, finite volumes, differential equations, singular integral equations.

**Applied Mechanics:** Poromechanics with applications in transport phenomena in porous media, fracture mechanics, plasticity theory, nano-indentation, analytical methods, aquifer recharge in hydrology.

**Petroleum Geomechanics:** Petroleum rock mechanics which includes problems in hydraulic fracturing, sanding prediction and control, wellbore stability, multiphase flows with applications in the CO<sub>2</sub> geological storage, compaction and enhanced oil recovery EOR.

### EDUCATION

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**University of Cyprus, Nicosia, Cyprus**

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**Ph.D. in Petroleum Geomechanics, (9/2005 – 4/2011)**

**Department of Civil and Environmental Engineering**

Thesis: *“Modelling of fluid driven fractures in cohesive poroelastoplastic formations”*

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**Technical University of Crete, Chania, Greece**

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**Master of Science in Environmental Geomechanics, (10/2004 - 8/2005)**

**Department of Mineral Resources Engineering**

Thesis: *“Numerical and theoretical investigation of the stress and strain fields in Brazilian discs with cracks and notches”*

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**Technical University of Crete, Chania, Greece**

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**Bachelor of Science in Mineral Resources Engineering, (10/1999 - 9/2004)**

**Department of Mineral Resources Engineering**

Thesis: *“Blasting waves modelling in mining operations with finite elements”*

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## PROFESSIONAL AND TEACHING EXPERIENCE

(6/2023-Present: Tenure Track Assistant Professor) **Aristotle University of Thessaloniki. School of Geology, Department of Minerology-Petrology-Economic Geology (Position: Assistant Professor in Hydrocarbons Exploration)**

### **Undergraduate courses offered/prepared.**

- Hydrocarbons exploration and production
- Coal exploration and production

### **Post-graduate courses offered/prepared.**

- Fluid flow in porous media (HGC-3Y)
- Drilling engineering (HGC-1Y)
- Production eng. & well performance/ Co-teaching (HGC-4Y)

### **Director of Laboratories**

- Drilling and Completion fluids
- Petrophysics

(07/2021 – 6/2023): Tenure Associate Professor -UNIC) **University of Nicosia. Department of Engineering (Position: Associate Professor)**

### **Undergraduate courses offered/prepared for the Oil and Gas Engineering Program**

- Rock and Fluid Properties/ Petrophysics (OGEE-220/OGEE-225)
- Drilling Engineering (OGEE-320)
- Well Construction and Completion Design (OGEE-350)
- Hydrocarbon Recovery Techniques (OGEE-430)
- Physical Geology (GEOL-110/ OGAS-211)
- Petroleum Geology (GEOL-210/ OGAS-212)
- Special topics in Oil and Gas Engineering (OGEE-490)
- General Physics I (PHYS-150)

(09/2015-07/2021: Tenure Track Assistant Professor)

(2013-2015: Adjunct Lecturer)

(2011-2013: Post-doc Researcher)

### **Undergraduate courses offered/prepared for the Civil and Environmental Engineering Program**

- Soil Mechanics (with Laboratory) (CEE-330)
- Foundations and Retaining Structure Design (CEE-431)
- Geotechnical Engineering (CEE-430)
- Engineering Geology (GEOL-121)
- Strength of Materials (MENG-270)
- Fluid Mechanics (MENG-280)

### **Undergraduate courses offered/prepared for the Oil and Gas Management Program**

- Fuels Science and Technology (OGAS-215)
- Petroleum Engineering Essentials (OGAS-425)

### **Post-graduate courses offered/prepared**

- Petroleum Geology (OGEE-510)
- Drilling Engineering (OGEE-520)
- Well Engineering (OGEE-524)

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|-------------------|--|
|                   | <p><b>Director of Laboratories</b></p> <ul style="list-style-type: none"> <li>• Drilling and Completion fluids</li> <li>• Rock and Soil Mechanics</li> <li>• Petrophysics</li> </ul>   |
| 01/2015 – 06/2023 | <p><b>Aristotle University of Thessaloniki (AUTH)</b><br/> <b>(Position: Visiting Associate Professor)</b></p> <p>Hydrocarbon Flow in Porous media (HGC-7.2)</p>   |
| 10/2014 - 10/2017 | <p><b>Intercollege of Nicosia. Gas Fuel Technicians Program (Position: Assistant Professor)</b></p> <p><b>Courses offered/prepared</b></p> <ul style="list-style-type: none"> <li>• Hydrocarbons Characterization</li> <li>• Soil Mechanics (with Laboratory)</li> </ul> |
| 08/2012           | <p><b>Intercollege</b></p> <p>Consulting and Preparation of the Path and Syllabus of the Gas Fuel Technicians Program (Operated from Fall 2013 until Spring 2016).</p>   |

## RESEARCH PROJECTS

|                                       |  |
|---------------------------------------|--|
| (Enterprises: 2022 – Withdrawn)       | <p><b>Latouros Quarries LTD (Coordinator- Principal Researcher- Consultant)</b></p> <p>Coordinator in the following research project funded R.I.F.<br/> Title: <i>“Drilling Fluid Systems with Cyprus Bentonites”</i></p>  |
| (CoDevelop: 2024- in Contract)        | <p><b>University of Nicosia Research Foundation (UNRF) (Principal Researcher- Partner Coordinator)</b></p> <ul style="list-style-type: none"> <li>• Researcher and Partner Coordinator in the following research project funded R.I.F.<br/> Title <i>“Development of Advanced Antimicrobial Nanofibrous Textiles through Effective Nanofinishing”</i>. Acronym: DANTE</li> </ul>                               |
| (CoDevelop: 2023- Ongoing)            | <p><b>University of Nicosia Research Foundation (UNRF) (Principal Researcher- Partner Coordinator)</b></p> <ul style="list-style-type: none"> <li>• Researcher and Partner Coordinator in the following research project funded R.I.F.<br/> Title <i>“Sustainable structural insulation panels from recycled clothing textiles and seaweed for the construction industry”</i>. Acronym: ReConstruct</li> </ul> |
| (Enterprises: 2022- Ongoing)          | <p><b>Advanced Materials Design and Manufacturing LTD (AmaDema) (Principal Researcher- Consultant)</b></p> <ul style="list-style-type: none"> <li>• Researcher in the following research project funded R.I.F.<br/> Title <i>“Development of enhanced fuel filtering systems using electrospun nanofibers”</i>. Acronym: NanoFilter</li> </ul>   |
| (Enterprises 2018- 2021: Completed)   | <ul style="list-style-type: none"> <li>• Researcher in the following research project funded R.I.F.<br/> Title: <i>“Intelligent Roll-to-Roll Processing of Advanced Carbon Fabrics based on Machine Learning and Non-Linear Automatic Control”</i></li> </ul>  |
| (PostDoc in Enterprises: 2018 – 2022: | <ul style="list-style-type: none"> <li>• Researcher in the following research project funded R.I.F.<br/> Title: <i>“Nano-Controlled Porosity for Multifunctional Fibre Reinforced</i></li> </ul>   |

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| Completed)                   | <i>Polymer Composites</i>   |
| 06/2012 - 04/2015            | <b>University of Cyprus as Principal Researcher</b><br>Principal Researcher, 30 month research project funded by the Research promotion Foundation (R.P.F). Title: <i>“The Risk of Formation Fracturing in CO<sub>2</sub> Geological Storage”</i> |
| 10/2011 - 06/2012            | <b>University of Cyprus (Principal Researcher)</b><br>Research fellow (Nireas International Water Research Centre)  |
| 05/2011 – 01/2012            | <b>Cyprus University of Technology (Principal Researcher)</b><br>Research fellow (Research Unit for Nanostructured Materials Systems)   |
| 09/2010 – 12/2011            | Research associate (Scaling of plastic zones in hydraulic fracturing)   |
| 05/2006 - 05/2009            | Principal Researcher, three year research project funded by the Research promotion Foundation (R.P.F). Title: <i>“Numerical Simulation of the Hydraulic Fracturing Technique for Applications in Soils Remediation”</i>                           |
| <b>INDUSTRIAL EXPERIENCE</b> |   |
| 04/2018 - 06/2022            | <b>Cyprus Aggregates Producers Association C.A.P.A (Consultant)</b><br>Principal Researcher, research project funded by CAPA. Title: <i>“PM10 measurements at aggregates producing quarries of Cyprus – Stage II”</i>                             |
| 09/2017 - 09/2018            | <b>Cyprus Aggregates Producers Association C.A.P.A (Consultant)</b><br>Principal Researcher, research project funded by CAPA. Title: <i>“PM10 measurements at aggregates producing quarries of Cyprus– Stage I”</i>                               |
| 05/2010 - 08/2010            | <b>Hellenic Technical Enterprises Ltd</b><br>Technical Report: <i>“Tailings Dam Stability Analysis with Finite Elements at Mitsero ‘Open Pit’ Mine Facility”</i>  |

## OTHER INFORMATION

### Awards

- Performance Award from the Technical Chamber of Greece (Academic Year of 2003-2004)
- Performance Award from the Technical Chamber of Greece (Academic Year of 2004-2005)

### Scientific Committees and Memberships

#### (A) National and International Committees

- Member of the National Hydrocarbons Committee CYS/TC22
- Member of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)
- Member of the board of directors in the Cypriot Society of Soil Mechanics and Geotechnical Engineering (CSSMGE)
- Member of the European Technical Committee on Numerical Methods (ERTC7)

#### (B) Department of Engineering

- BSc and MSc Oil, Gas and Energy programs coordinator (2021-Present)
- Associate Head of the Department of Engineering (2018-2020, position via elections)
- Department Postgraduate Programs Committee (DPPC): member (2018-2021)

#### (C) Professional Bodies

- Chair of the Mineral and Mining Engineering Committee of the Technical Chamber of Cyprus
- Member of the sub-committee for registering new Oil and Gas engineers at the Technical

Chamber of Cyprus

- Member of the sub-committee for registering new Mining and Mineral Resources engineers at the Technical Chamber of Cyprus
- Member of the Scientific and Technical Chamber of Cyprus - Ref. Number: A099707
- Member of the Society of Petroleum Engineers (SPE) - Ref. Number: 3579797
- Member of the American Rock Mechanics Association (ARMA) Ref. Number: 3020359
- Member of Evaluation Committee for Environmental Reports appointed by the Technical Chamber of Cyprus
- Member of the professional research committee of the Technical Chamber of Cyprus
- Member of the Scientific Committee for Water issues in Cyprus appointed by the Technical Chamber of Cyprus (2018-2021)

#### **(D) Service to Governmental and NGO's**

- Reviewer of proposals for industrial applications submitted to the Ministry of Energy, Commerce, Industry and Tourism
- Partner with the Cyprus Energy Agency for regarding energy auditor all three levels
- Examiner for energy auditors all three levels at the Ministry of Energy, commerce and industry

#### **Journal Reviewer (Manuscripts)**

- International Journal for Numerical and Analytical Methods in Geomechanics (IF: 2.814) (**M:9**)
- Applied Mathematical Modelling (IF: 3.633) (**M:1**)
- Simulation Modelling Practice and Theory (IF: 2.219) (**M:2**)
- International Journal of Solids and Structures (IF: 3.213) (**M:4**)
- Petroleum Science (IF: 2.034) (**M:2**)
- Computers and Geotechnics (IF: 3.818) (**M:1**)
- Geomechanics for energy and the Environment (IF: 2.077) (**M:3**)
- Journal of Petroleum Science and Engineering (IF: 3.706) (**M:6**)
- European Journal of Environmental and Civil Engineering (IF: 1.832) (**M:2**)
- Rock Mechanics and Rock Engineering (IF: 5.252) (**M:5**)
- Energies (IF: 2.702) (**M:6**)
- International Journal of Engineering Science (IF: 9.219) (**M:1**)

#### **Supervision of Doctoral Dissertations and Theses**

##### **Doctoral Dissertations**

1) Mr. Demetris Photiou (Nationality: Greek-Cypriot)

**Title:** “*Computational Modelling of Nano-Indentation on Emerging materials: Auxetics, hard thin and cohesive-frictional solids*”.

**Role:** Co-supervision with Prof Constantinides, Department of Mechanical Engineering -CUT

**Status:** **Graduated:** June 2019.

2) Mr. Panos Kakonitis (Nationality: Greek-Cypriot)

**Title:** “*A Novel Model for Predicting Sand Production from Oil and Gas Reservoirs*”.

*Under Scholarship from the Ministry of Energy, Commerce, Industry and Tourism (30.000 Euro).*

**Role:** Main Advisor

**Status:** Started September 2022.

3) Mrs. Ioustina Ramsis (Nationality: Greek-Egyptian)

**Title:** “*The Use of Cyprus Bentonites as Low-Density Solids in Environmental Drilling Fluids*”.

*Under Scholarship from the Ministry of Energy, Commerce, Industry and Tourism (30.000 Euro).*

**Role:** Main Advisor

**Status:** Started September 2022.

## **Master of Sciences**

- 1) Mr. Benson Chizubem (Nationality: Nigerian)  
**Title:** “*Finite Element Analysis of the Stress Field around Deep Wellbores for Fracture Onset Prediction*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** November 2016.
  
- 2) Mr. Yasir Shahzad (Nationality: Iranian)  
**Title:** “*The Influence of Proppants in Hydraulic Fracture Design For Optimum Production Unconventional Horizontal Gas Wells Using A Classical Field Simulator*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** September 2017.
  
- 3) Mr. Aladeyelu Abdullahi Shola (Nationality: Nigerian)  
**Title:** “*The Influence of Diffusion in Wellbore Strengthening: A Rock Mechanics Approach*”.  
Role/Status: Main Advisor, **Graduated:** February 2018.
  
- 4) Mr. Vincent Okoampah-Apau (Nationality: Nigerian)  
**Title:** “*Poroelastic Stress Analysis For Wellbore Stability With the Finite Element Method*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** March 2018.
  
- 5) Mrs. Anna Solomou (Nationality: Greek-Cypriot)  
**Title:** “*Experimental and Numerical Investigation of Sorptivity and Drying Characteristics of Rocks*”.  
Role/Status: co-advisor with UCY. **Graduated:** January 2019.
  
- 6) Mrs. Georgina Apostolidou (Nationality: Greek-Cypriot)  
**Title:** “*Theoretical and Experimental Investigation of the Influence of Capillary Pressure in Fluid Flow in Porous Media During Imbibition and Desaturation*”.  
Under Scholarship from the Ministry of Energy, Commerce, Industry and Tourism (20.000 Euro).  
Role/Status: Main Advisor-UNIC, **Graduated:** March 2020.
  
- 7) Mr. Ahmad Muazu (Nationality: Nigerian)  
**Title:** “*Constraining the In-Situ Stresses in the Offshore Benin Basin With Finite Elements*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** June 2020.
  
- 8) Mr. Murtala Namakka (Nationality: Nigerian)  
**Title:** “*A Computational Study of Hollow Cylinder Tests on Weak Unconsolidated Sandstones for Sand Production Prediction*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** June 2020.
  
- 9) Mr. Sofronis Severis (Nationality: Greek-Cypriot)  
**Title:** “*A Computational Methodology for Constructing the Synthetic Wetting Capillary Curve of Rocks*”.  
Under Scholarship from the Ministry of Energy, Commerce, Industry and Tourism (20.000 Euro).  
Role/Status: Main Advisor-UNIC, **Graduated:** June 2020.
  
- 10) Mr. Peleg Kufliq (Nationality: Israeli)  
**Title:** “*Fracture Toughness Analysis Around a Crack Tip: A Rock Mechanics Approach*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** June 2020.
  
- 11) Mr. Theodoros Cheimonas (Nationality: Greek-Cypriot)  
**Title:** “*Modeling Formation Stability after Hydraulic Fracturing in Weak Reservoirs*”.  
Under Scholarship from the Ministry of Energy, Commerce, Industry and Tourism (20.000 Euro).  
Role/Status: Main Advisor-UNIC, **Graduated:** January 2021.

12) Mr. Alexandros Alexiou (Nationality: Greek)  
**Title:** “*Numerical Analysis of Poroelastoplastic effects in Wellbore Stability with the Finite Element Method*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** July 2022.

13) Mr. Prokopis Alexandrou (Nationality: Greek-Cypriot)  
**Title:** “*Modelling CO<sub>2</sub>-Induced Uplift of Caprocks for the Various Flow Regimes in the CO<sub>2</sub> Sequestration Problem*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** January 2023.

14) Mr. Dimitris Karayiannis (Nationality: Greek)  
**Title:** “*Optimum Perforation Design of North Sea Well With PipeSim*”.  
Role/Status: Main Advisor-AuTH, **Graduated:** October 2023.

15) Mrs. Evangelia Tzoumani (Nationality: Greek)  
**Title:** “*Heave Analysis Caused from CO<sub>2</sub> Injection in geologic formations*”.  
Role/Status: Main Advisor-AuTH, **Graduation Estimation:** June 2024.

16) Mr. Stelios Papadimitriou (Nationality: Greek)  
**Title:** “*Investigation of the Viability of the East Med Pipeline Design with PipeSim*”.  
Role/Status: Main Advisor-AuTH, **Graduation Estimation:** June 2024.

17) Mr. Alexandros Papadjanis (Nationality: Greek)  
**Title:** “*Dynamic v.s Static Thermal Aging of Water Based Drilling Fluids for Geothermal Wells*”.  
Role/Status: Main Advisor-AuTH, **Graduation Estimation:** September 2024.

## **Bachelor of Sciences**

1) Miss Marianna Stavrinides (Civil Engineering)  
**Title:** “*An Experimental Analysis of Sorptivity in Natural Building Sedimentary Rocks*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** February 2018.

2) Mr. Phanourios Theodotou (Civil Engineering)  
**Title:** “*Finite Element Modelling of Water Transport in Natural Building Stones*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** January 2019.

3) Mr. Samson Balde (Civil Engineering)  
**Title:** “*The Comparison of Various Methods of Calculating The Pile Capacity*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** May 2019.

4) Mrs. Marwa Manwar (Civil Engineering)  
**Title:** “*The Effect of Seismic Soil-Structure Interaction on the Response of a Building*”.  
Role/Status: Main Advisor-UNIC, **Graduated:** January 2020.

### **Collaborations**

1. National Technical University of Athens (NTUA), School of Mining and Metallurgical engineering.
2. University of Cyprus (UCY), School of Engineering, Department of Civil Engineering (Research partnership)
3. Cyprus University of Technology (CUT), School of Engineering, Department of Civil Engineering and Department of Mechanical Engineering (Research partnership)
4. University of Kentucky (UK), School of Engineering, Department of Mining Engineering (Research partnership)

5. Schlumberger Research Centre at Cambridge Gould (Research partnership)
6. SINTEF Petroleum (Research partnership)
7. Research Unit for Nanostructured Materials Systems of CUT (Research partnership)
8. Halliburton Drilling and Completion Fluids (collaboration-student internships)

### Computer Experience and Skills

#### Programming

Mathematica, Maple, Fortran, Matlab, Mathcad.

#### Operating Systems

Windows, Unix, Microsoft Office.

#### Designing Software

Autocad, Cad Overlay, Solid works

#### Finite Element Software

Abaqus, MSC. Marc-Mentat, Plaxis geotechnical package, Franc2D fracture mechanics finite element code.

#### Computational Fluid Dynamics

Ansys – Fluent, Ansys- CFX

#### Petroleum Related Analysis Software

Petrel-Reservoir Engineering, Eclipse-Blackoil Reservoir Simulation, Pipe-sim.

### Languages

|         | Reading   | Writing   | Speaking  |
|---------|-----------|-----------|-----------|
| Greek   | Native    | Native    | Native    |
| English | Excellent | Excellent | Excellent |

### Army service (Compulsory and Completed)

Special Forces (1996-1998). Navy U.D.T (Underwater Demolition Teams).

## PUBLICATION LIST

### Journal Papers

- [J24]. Gravanis, E., Akylas, E., & Sarris, E. (2024). Approximate Solutions for Horizontal Unconfined Aquifers in the Buildup Phase. *Water*, Vol. 16, 1031.
- [J23]. Ramsis Y., Gravanis, E., & Sarris, E. (2024). Colloidal properties of polymer amended Cyprus bentonite for water-based drilling fluid applications. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, Vol. 682, 132983.
- [J22]. Gravanis, E., & Sarris, E. (2023). A New Analytical Method for Calculating Subsidence Resulting by Fluid Withdrawal from Disk-Shaped Confined Aquifers. *Water*, Vol. 15(18), 3175.
- [J21]. Kakonitis P., Gravanis E. and Sarris E. (2023). “A Hydro-Mechanical Semi-Analytical Framework For Hollow Cylinder Sanding Tests”. *Geomechanics for Energy and the Environment*. Vol. 35, 100487.
- [J20]. Kakonitis P., Sarris E. and Gravanis E., (2023). “On the stress dependency of sand production coefficient in hydro-dynamical sanding criteria”. *International Journal of Rock Mechanics and Mining Sciences*. Vol. 169, 105443.
- [J19]. Gravanis E. and Sarris E. (2023). “A working model for estimating CO<sub>2</sub>-induced uplift of cap rocks under different flow regimes in CO<sub>2</sub> sequestration”.



*Geomechanics for Energy and the Environment*. Vol. 33, 100443.

- [J18]. **Sarris E.** and Gravanis E., (2022). “A hydrodynamic model for analyzing the closure stresses in the wellbore strengthening problem”. *International Journal for Numerical and Analytical Methods in Geomechanics*. Vol. 46(9), pp. 1705–1728.
- [J17]. Apostolidou C., **Sarris E.** and A. Georgakopoulos (2022). “Dynamic thermal aging of water-based drilling fluids with different types of low-rank coals as environmental friendly shear thinning additives”. *Journal of Petroleum Science and Engineering*. Vol.208, article no. 109758.
- [J16]. Evangelou A., Loizou K., Georgallas M., **Sarris E.**, Marangos O., Koutsokeras L., Yiatros S., Constantinides G., Doumanides C., and V., Drakonakis (2021). “Evaluation of a thermal consolidation process for the production of enhanced technical fabrics”. *Machines*. Vol. 9(8), article no.143.
- [J15]. Papaloizou, L., **Sarris, E.**, Polycarpou, P., & Komodromos, P. (2020). “Earthquake vulnerability of ancient multi-drum columns with a single epistyle”. *Procedia Structural Integrity*, Special Vol. 29, pp. 111-117.
- [J14]. **Sarris E.** and Gravanis E. (2019) “Flow regime analysis of the pressure build-up during CO<sub>2</sub> injection in saturated porous rock formations”. *Energies*, Vol.12 (15), article no. 2972. <https://doi.org/10.3390/en12152972>.
- [J13]. **Sarris E.** and Gravanis E., (2019) “A novel methodology for synthesizing the wetting capillary pressure curve of rocks through sorptivity data” *Journal of Petroleum Science and Engineering*. Vol.180. pp. 413-423.
- [J12]. Photiou D., **Sarris E.**, and Constantinides G. (2017). “Erratum to “on the conical indentation response of elastic auxetic materials: effects of Poisson’s ratio, contact friction and cone angle [Int. L. Solids Struct. (2016) Vol. 81, pp.33-42]”, *International Journal of Solids and Structures*.
- [J11]. Papanastasiou P., Kyriakou, A., **Sarris E.** (2017). “Constraining the in-situ stresses in a tectonically active offshore basin in Eastern Mediterranean” *Journal of Petroleum Science and Engineering*, vol.149 (20), pp. 208-217.
- [J10]. Photiou D., Prastiti N., **Sarris E.**, and Constantinides G. (2016) “On the conical indentation response of elastic auxetic materials: Effects of Poisson’s ratio, contact friction and cone angle”, *International Journal of Solids and Structures*, vol.81 (1), pp. 33-42.
- [J9]. Atkinson C., **Sarris E.**, Gravanis E., and Papanastasiou P. (2016). “On certain integral equations arising in the analysis of wellbore recharge in anisotropic formations”, *Applied Mathematical Modelling*, vol.40 (1), pp. 343-362.
- [J8]. Gravanis E., **Sarris E.**, and Papanastasiou P. (2015). “Hydro-mechanical erosion models for sand production”, *International Journal for Numerical and Analytical Methods in Geomechanics*, vol.39 (18), pp. 2017-2036.
- [J7]. **Sarris E.**, Papanastasiou P. (2014). “The influence of pumping parameters in fluid-driven fractures in weak porous formations” *International Journal for Numerical and Analytical Methods in Geomechanics*, vol.39 (6), pp. 635-654.
- [J6]. **Sarris E.**, Gravanis E., Papanastasiou P. (2014). “Investigation of the self-similar interface evolution in carbon dioxide sequestration in saline aquifers”, *Transport in Porous Media*, vol.103(3), pp. 341-359.
- [J5]. **Sarris E.**, Constantinides G. (2013). “Finite element modeling of nano-indentation on

C-S-H: effect of pile-up and contact friction”, *Cement and Concrete Composites*, vol. 36, pp. 78-84.

- [J4]. **Sarris E.**, Papanastasiou P. (2012) “Numerical modeling of fluid-driven fractures in cohesive poroelastoplastic continuum”, *International Journal for Numerical and Analytical Methods in Geomechanics*, vol.37 (12), pp. 1822-1846.
- [J3]. **Sarris E.**, Papanastasiou P. (2012). “Modeling of hydraulic fracturing in a poroelastic cohesive formation”, *International Journal of Geomechanics*, vol.12 (2), pp. 160-167.
- [J2]. **Sarris E.**, Papanastasiou P. (2011). “The influence of cohesive process zone in hydraulic fracturing modelling”, *International Journal of Fracture*, Springer, vol. 167 (1), pp. 33-45.
- [J1]. **Sarris, E.**, Agioutantis Z. (2004). “Numerical simulation of the dynamic phase during rock blasting”, *Mineral Wealth*, vol. 133, pp. 9-18 (in Greek).

### Book Chapters

- [BC3] Papanastasiou P. and **Sarris. E.** “Cohesive Zone Models”, *Porous Rock Failure Mechanics: with application to hydraulic fracturing, drilling and structural engineering*. Eds. Sojaei A., and J Shao. Woodhead Publishing-Elsevier (2017).
- [BC2] **Sarris, E.**, Agioutantis, Z., Kaklis, K. and Kourkoulis, “Numerical simulation of the cracked Brazilian disk under diametrical compression”, *Bifurcations, Instabilities, Degradation in Geomechanics*, Springer-Verlag, (2007).
- [BC1] Markides Ch., **Sarris E.**, Papis D.N., Agioutantis Z., Kourkoulis S. K., “Marble discs under distributed loading: theoretical, numerical and experimental analysis”, *Fracture of Nano and Engineering Materials and Structures*, Springer-Verlag, (2006).

### Edited Books

- [ED1]. Papanastasiou P., Roussis P., Loukidis D., Katsikadelis J. and **E. Sarris** (Editors) Proceedings of the 9<sup>th</sup> HSTAM-International Congress on Mechanics, Limassol, Cyprus, July 12-14, (2010).

### Papers in Refereed Conference Proceedings

- [C54]. Kakonitis P., Papaloizou P., Gravanis E. & **Sarris E.**, (2024). “Modeling erosion in hollow cylinder tests: The case of low pressure under variable confining stress”. *American Rock Mechanics Association (ARMA)*, 23-26 June, Golden, Colorado-USA.
- [C53]. Ramsis Y., Papaloizou L., **Sarris E.**, & Vattis D. (2024). “On the colloidal and filtration properties of a polymer-amended waste K<sup>+</sup>-rich bentonite for use as additive in water-based drilling fluids”. *International Conference on Chemical, Energy Science and Environmental Engineering (CESEE 2024)*, 21-23 June, Rome, Italy (submitted paper, under review).
- [C52]. Ramsis Y., **Sarris E.**, Papaloizou L., & Vattis D. (2024). “The effect of polymer amendment on the colloidal properties of a waste K<sup>+</sup>-rich bentonite for water-based drilling fluid applications.”. *International Conference on Material Engineering*

*Research (ICMER)*, 19-21 April, Jeju Island, South Korea (submitted paper, under review).

- [C51]. **Sarris E.**, Papaloizou P., and E. Gravanis E. (2023). “A decoupled CFD-mechanical model for estimating the deflections from CO<sub>2</sub> sequestration in low and high buoyancy flow regimes”. *American Rock Mechanics Association (ARMA)*, 25-28 June, Atlanta, Georgia - USA.
- [C50]. Youstina R., **Sarris E.**, Papaloizou P., Gravanis E., and D. Vattis (2023). “The influence of activation methodologies on the rheological and filtration characteristics of Cyprus smectites for potential use as low density solids in drilling fluids. A case study of Polycanthos quarry”. *American Rock Mechanics Association (ARMA)*, 25-28 June, Atlanta, Georgia - USA.
- [C49]. **Sarris E.**, and P. Papaloizou (2023). “A fully coupled finite element model for simulating hydro-dynamical plugging of unwanted hydraulic fractures in wellbore strengthening”. *The Seventh International Conference on Computational Modeling of Fracture and Failure of Materials and Structures*. 21-23 June, Prague. Czech Republic.
- [C48]. **Sarris E.**, Gravanis E. and P. Papaloizou (2022). “A simplified model for predicting the CO<sub>2</sub>-induced deflections of cap rocks in the low and high buoyancy flow regimes”. *3<sup>rd</sup> International Conference on Coupled Processes in Fractured Geological Media: Observation, Modeling and Application*. 14-16 November, Berkeley-California. USA.
- [C47]. Papaloizou L., **Sarris E.**, Polycarpou P. and M. Kyriakides (2022). “Can ancient multi-drum columns be used as “stone” seismometers?”. *3ECEES, 3<sup>rd</sup> European Conference on Earthquake Engineering and Seismology*. 4-9 September, Bucharest-Romania.
- [C46]. Gravanis E, **Sarris E.** and S. Patruno (2022). “A simplified hydro-mechanical model for sanding from hollow cylinder tests”. *American Rock Mechanics Association (ARMA)*, June 26-29, New Mexico-USA.
- [C45]. Patruno S., Abdallah I., Olanrewaju O., Scisciani V. and **E. Sarris** (2021). “The Zohr play in the Cyprus EEZ: geological observations from Miocene reef outcrops and offshore seismic”. In *3<sup>rd</sup> EAGE Eastern Mediterranean Workshop*. Vol. 2021, No. 1, pp. 1-3.
- [C44]. Abdallah I., Patruno S., **Sarris E.**, Scisciani V. and F. Colantonio (2021). Characterization of fractured carbonate reservoirs: preliminary data from Miocene reef outcrops of Cyprus. In *82<sup>nd</sup> EAGE Annual Conference & Exhibition*. Vol. 2021, No. 1, pp. 1-5. European Association of Geoscientists & Engineers.
- [C43]. Patruno S., Abdallah I., Scisciani V., **Sarris, E.** and F. Colantonio (2021). “The anatomy of a fractured reef from Cyprus: a possible analogue for the Eastern Mediterranean carbonate reservoirs”. In *EGU General Assembly Conference Abstracts*. April, pp. EGU21-6485.
- [C42]. Savva I., Loizou K., **Sarris E.**, Koutsokeras L., Marangos O., Constantinides G., Yiatros S., Sofocleous K. and V. Drakonakis (2021). “Nano-reinforced epoxy foaming systems for the development of multifunctional fiber reinforced polymer composites”. *European Congress and Exhibition on Advanced Materials and Processes*. EUROMAT-2021, Austria-Europe, 12-16 September.

- [C41]. **Sarris E.**, Gravanis E. and L. Papaloizou (2021). “A Hydro-dynamical constitutive law for modelling sand production”. *55<sup>th</sup> American Rock Mechanics Association (ARMA)*. June 18-25, Houston Texas-USA.
- [C40]. **Sarris E.**, Gravanis E. and L. Papaloizou (2020). “Pressure build-up analysis in the flow regimes arising in the CO<sub>2</sub> sequestration problem”. *2<sup>nd</sup> International Conference on Energy Geotechnics (ICEGT-2020)*. La Jolla, San Diego, California, USA, postponed due to Covid-19 for March 28-31, 2021.
- [C39]. **Sarris E.**, Gravanis E. and L. Papaloizou (2019). “On the poroelastic closure stress on particles for wellbore strengthening applications”. *Hellenic Society for Theoretical and Applied Mechanics (HSTAM)*. Thessaloniki-Greece, Aristotle University of Thessaloniki, September 22-25.
- [C38]. **Sarris E.**, Gravanis E. and L. Papaloizou (2019). “A computational methodology to reconstruct the capillary pressure vs saturation curve of rocks through sorptivity tests”. *American Rock Mechanics Association (ARMA)*. New York-USA, June 23-26.
- [C37]. Photiou D., **Sarris E.** and G. Constantinides (2018). “Finite element modeling of nanoindentation on thin films”. *XXXIII Panhellenic Conference on Solid State Physics and Material Science*. University of Cyprus, Nicosia, Cyprus, September 17-19.
- [C36]. Photiou D., **Sarris E.** and G. Constantinides (2018). “Finite element modeling of nanoindentation on super-hard materials”. *XXXIII Panhellenic Conference on Solid State Physics and Material Science*. University of Cyprus, Nicosia, Cyprus, September 17-19.
- [C35]. Papaloizou L., Polycarpou P., **Sarris E.** and P. Komodromos (2018). “Computer-aided investigation of the seismic response of ancient columns”. *36<sup>th</sup> General Assembly of the European Seismological Commission (GAESC)*. Valletta, Malta, September 2-7.
- [C34]. **Sarris E.** and E. Gravanis (2018). “Investigation of the influence of diffusion on the closure stress on particles for wellbore strengthening applications”. *International Symposium on Energy Geotechnics*. Lausanne, Switzerland, September 25-28.
- [C33]. **Sarris E.**, Aladeyelu, A., and E. Gravanis (2018). “The influence of diffusion in the fracture resistance method for wellbore strengthening: A Rock Mechanics Approach”. *14<sup>th</sup> International Conference of Computational Methods in Sciences and Engineering*. Thessaloniki, Greece, March 14-18.
- [C32]. **Sarris E.**, Cheimonas, T., and Gravanis E., (2017). “The influence of pore pressure on formation stability after hydraulic fracturing”. *5<sup>th</sup> International Conference on Computational Modeling of Fracture and Failure of Materials and Structures*. Nantes, France, June 14-16.
- [C31]. Daria K. and **E. Sarris** (2017). “CFD analysis of the interface evolution from carbon dioxide sequestration for EOR”. *East Meets West Congress*. Cracow, Poland, April 4-6.
- [C30]. Gravanis E. **Sarris E.**, and P. Papanastasiou (2016). “A hydro-mechanical erosion analytical model for sand prediction”. *50<sup>th</sup> US Rock Mechanics/Geomechanics Symposium (ARMA)*. Houston-TX, June 26-29.
- [C29]. Photiou D., **E. Sarris**, and G. Constantinides (2016). “Indentation resistance of

- elastic and elastic-plastic auxetic materials: A finite element study”. *13<sup>th</sup> International Conference on Nanosciences & Nanotechnologies* (NN16). Thessaloniki, Greece, 5-8 July.
- [C28]. Photiou D., Prastiti N., **Sarris E.** and G. Constantinides (2015). “Indentation resistance enhancement of auxetic materials: A numerical investigation”. *XXXI Panhellenic Conference on Solid State Physics and Materials Science*. Thessaloniki, Greece, 20-23 September.
- [C27]. Kyriakou A., Papanastasiou P. and **E. Sarris** (2015). “In-Situ stress estimation in offshore Eastern Mediterranean with finite element analysis”. *8<sup>th</sup> GRACM International Congress on Computational Mechanics*. Volos Greece, July 12-15.
- [C26]. **Sarris E.**, Gravanis, E. and P. Papanastasiou (2015). “CO<sub>2</sub> injection for geological storage”. *8<sup>th</sup> GRACM International Congress on Computational Mechanics*. Volos Greece, July 12-15.
- [C25]. **Sarris E.** and P. Papanastasiou (2014). “Numerical investigation of plastic zones in hydraulic fracturing in weak poroelastoplastic formations”. *14<sup>th</sup> Hydraulic Fracturing Summit*. Cambridge-MA, USA, June 5-7.
- [C24]. **Sarris, E.** and P. Papanastasiou (2014). “Numerical investigation of a hydraulic fracture driven in weak poroplastic formation”. *48<sup>th</sup> US Rock Mechanics/ Geomechanics Symposium (ARMA)*. Minneapolis, MN, June 1- 4.
- [C23]. **Sarris E.**, Gravanis E. and P. Papanastasiou (2014). “Computational modeling of the interface evolution from carbon dioxide sequestration for enhanced oil recovery”. *The International Petroleum Technology Conference (IPTC)*. Doha, Qatar, January 20-22.
- [C22]. **Sarris E.** and G. Constantinides (2013). “Nanoindentation on cohesive-frictional materials: A computational study”. *XXIX Panhellenic Conference of Solid-State Physics and Materials Science*. National Technical University of Athens NTUA, September 22-25.
- [C21]. **Sarris E.** and P. Papanastasiou (2013). “The influence of pumping parameters in fluid-driven fractures”. *3<sup>rd</sup> South-East European Conference on Computational Mechanics-an ECCOMAS and IACM Special Interest Conference SEECCM III*. Kos Island, Greece, June 12–14.
- [C20]. **Sarris E.**, Gravanis E., and P. Papanastasiou (2013). “The flow regimes of carbon dioxide injection in porous media”. *10<sup>th</sup> HSTAM International Congress on Mechanics*. Chania, Crete, Greece, May 25-27.
- [C19]. Kleovoulou K., **Sarris E.**, Kelires P.C., Constantinides G., and N.G. Hadjiconstantinou (2012). “Multi-scale/multi-physics modelling of cantilever-based gas sensors”. *9<sup>th</sup> International Conference on Nanosciences & nanotechnologies* NN12. Thessaloniki, Greece, July 3-6.
- [C18]. **Sarris E.** and G. Constantinides (2012). “Finite element modeling of indentation testing on cohesive-frictional films”. *9<sup>th</sup> International Conference on Nanosciences & Nanotechnologies – NN12*. Thessaloniki, Greece, July 3-6.
- [C17]. **Sarris E.** and G. Constantinides (2012). “Finite Element Modeling of Nanoindentation on C-S-H: Effect of Contact Friction”. *4<sup>th</sup> International Conference on Nanotechnology in Construction-NICOM4*. Agios Nikolaos, Crete, Greece, May 20-22.

- [C16]. **Sarris E.** and P. Papanastasiou (2012). “Modelling of hydraulic fracturing in a weak permeable formation”. (SPE-151706-PP). *North Africa Technical Conference and Exhibition* (NATC). Cairo, Egypt, February 20-22.
- [C15]. **Sarris E.** and P. Papanastasiou (2011). “Plastic zone scaling of hydraulic fractures in cohesive poroelastoplastic continuum”. *7<sup>th</sup> GRACM International Congress on Computational Mechanics*. Athens, Greece.
- [C14]. **Sarris E.** and P. Papanastasiou (2011). “Modelling of hydraulic fracturing in weak poroelastoplastic formation”. *13<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics*. Melbourne, Australia, May 9-13.
- [C13]. **Sarris E.** and P. Papanastasiou (2010). “Computational investigation of the influence of pore pressure field on a propagating fracture in poroelastoplastic continuum”. *10<sup>th</sup> Hydraulic Fracturing Summit*. Limassol, Cyprus, July 15-18.
- [C12]. **Sarris E.** and P. Papanastasiou (2010). “The influence of in-situ stress and pore pressure fields in hydraulic fracturing under poroelastoplastic conditions”. *9<sup>th</sup> HSTM International Congress on Mechanics*. Limassol, Cyprus, July 12-14.
- [C11]. **Sarris E.** and P. Papanastasiou (2009). “Computational modelling of non-linear processes in hydraulic fracturing”. *2<sup>nd</sup> SEECM-South-East European Conference on Computational Mechanics*. Island of Rhodes Greece, June 22-24.
- [C10]. **Sarris E.** and P. Papanastasiou (2008). “Investigation of the cohesive process zone in hydraulic fracture simulations”. *6<sup>th</sup> GRACM International Congress on Computational Mechanics*. Sallonica Greece.
- [C9]. Papanastasiou P. and **E. Sarris** (2008). “The influence of the cohesive zone in hydraulic fracturing”. *The Inaugural International Conference of the Engineering Mechanics Institute* (EM 08). Minneapolis, Minnesota, May 19-21.
- [C8]. **Sarris E.** and P. Papanastasiou (2007). “Numerical simulation of the fluid-driven fracture problem in porous medium”. *EUROMECH Colloquium 489 Modelling Multiphase Materials*. Sweden.
- [C7]. Markides C., **Sarris E.**, Papis D.N., Agioutantis Z. and S.K. Kourkoulis (2005). “Marble discs under distributed loading: theoretical, numerical and experimental analysis”. *16<sup>th</sup> European Conference of Fracture*.
- [C6]. Psarropoulos P.N., Tsompanakis Y., Karabatsos Y., Xiroudakis G. and **E. Sarris** (2005). “Stability of tailings dams – Part II: Dynamic loading”. *International Workshop on Geoenvironment and Geotechnics*.
- [C5]. **Sarris E.**, Xiroudakis G., Y. Tsompanakis and P.N. Psarropoulos (2005). “Stability of tailings dams – Part I: Static loading”. *International Workshop on Geoenvironment and Geotechnics*.
- [C4]. **Sarris E.** and Z. Agioutantis (2005). “Numerical analysis of the dynamic phase of rock blasting under the influence of pre-existing discontinuities”. *5<sup>th</sup> GRACM International Congress on Computational Mechanics*. Vol.1, pp. 445-452, Limassol Cyprus.
- [C3]. Kaklis K.N., Agioutantis Z.G., **Sarris E.** and A. Pateli (2005). “A theoretical and numerical study of discs with flat edges under diametral compression (flat Brazilian test)”. *5<sup>th</sup> GRACM International Congress on Computational Mechanics*. Vol.1, pp. 437- 444, Limassol Cyprus.

- [C2]. Sarris E., Agioutantis Z., Kaklis K. and S.K. Kourkoulis (2005). “Numerical simulation of the cracked Brazilian disk under diametrical compression”. *7<sup>th</sup> International Workshop on Bifurcation, Instabilities and Degradation in Geomechanics*. Chania, Crete, Greece.
- [C1]. Sarris E. and Z. Agioutantis (2005). “Numerical investigation of damping in rock blasting operations”. *International Conference for MSC Users*. Patras, Greece,

### Invited Speaker in Seminars

- [S12]. Sarris E., “Air Quality In Quarries and Nearby Communities”, UEPG: Union Européenne des Producteurs de Granulats, 16 June, Larnaka-Cyprus (2022).
- [S11]. Sarris E., “PM<sub>10</sub> Dust Emission Measurements – Second Phase”, UNIC: University of Nicosia, 15<sup>th</sup> of December, Public Online streaming presentation (2021).
- [S10]. Sarris E., “Fluid Flow in Porous Media - Capillary Mechanics”. Aristotle University of Thessaloniki, Department of Applied Sciences. Invited lecture. Thessaloniki-Greece (2019).
- [S9]. Sarris E., “PM<sub>10</sub> Measurements at Aggregate Producing Mines of Cyprus”. Department of Labour Inspection DLI. Public Lecture. Nicosia-Cyprus (2018).
- [S8]. Sarris E., “PM<sub>10</sub> Measurements at Aggregate Producing Mines of Cyprus”. Cyprus Chamber of Commerce and Industry (CCCI). Public Lecture. Nicosia-Cyprus (2018).
- [S7]. Sarris E. & A. Aladeyelu. “The Influence of Diffusion in the Fracture Resistance Method for Wellbore Strengthening: A Rock Mechanics Approach”. SPE/AAPG Student Chapter Presentation, University of Nicosia, Department of Engineering, Oil, Gas and Energy program, Nicosia-Cyprus, November 28, (2018).
- [S6]. Sarris E. “Advanced Numerical Methods in Rock Engineering”. Civil and Environmental Engineering Department seminars, invited speaker at Chalmers Technical University, Sweden September 22, (2016).
- [S5]. Sarris E. “Geology of Carbonate Rocks”, in the: *Third Licensing Round: Game-Changing Possibilities*, University of Nicosia, June 9, (2016). Under the auspices of the Minister.
- [S4]. Sarris E., Gravanis, E., and Papanastasiou, P., “The Risk of Formation Fracturing from CO<sub>2</sub> Sequestration in Geological Formations”, Technical University of Crete, Department of Mineral Resources Engineering, Chania, Crete, (2015).
- [S3]. Sarris E., “Modelling of Fluid Driven Fractures in Cohesive Poroelastoplastic Formations”. SPE Chapter Presentation, University of Nicosia, Department of Oil and Gas Energy Engineering, Nicosia, Cyprus, April 10, (2014).
- [S2]. Sarris E., “Hydrocarbon (Petroleum and Gas) System in Marine Environments”. Seminar Presentation, University of Nicosia, Department of Oil and Gas Energy Engineering, Nicosia, Cyprus, September 11, (2014).
- [S1]. Sarris E., “The Risk of Formation Fracturing from CO<sub>2</sub> Sequestration”. SPE Student Chapter Presentation, University of Nicosia, Department of Engineering Oil, Gas and Energy program, Nicosia, Cyprus, December 5, (2014).

### Abbreviations

- [J]: Journal paper  
 [C]: Conference or extended abstract  
 [BC]: Book chapter  
 [ED]: Edited books  
 [S]: Seminars