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Google Scholar: Citations 369, h-index 10, i10-index 10; **Scopus**: Citations 276, h-index 8

[Google Scholar](#)

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Academic qualifications

2019-2023	Southern Methodist University, Dallas, TX, USA Doctor of Philosophy (Ph.D.) in Civil Engineering Advisor: Professor Nicos Makris
2018	City, University of London, UK Introductory Certificate in Academic Practice
2014-2015	University of Surrey, UK Master of Science (M.S.) in Bridge Engineering with Distinction Advisor: Associate Professor Stergios A. Mitoulis
2006-2012	National Technical University of Athens (NTUA), Greece 5-year Diploma (integrated M.S.) in Civil Engineering with specialization in Structural Engineering Advisor: Assistant Professor Tasos Avraam

Academic and professional experience

Aug 2023 – Present	Assistant Professor , The University of Texas at Tyler <ul style="list-style-type: none">• CENG 3306: Mechanics of Materials• CENG 3310: Fluid Mechanics and Hydraulics• CENG 3325: Structural Analysis• CENG 3434: Civil Engineering Materials, Codes & Specifications• CENG 4350/5350: Structural Dynamics
Jun – Aug 2023	Postdoctoral Research Fellow , Southern Methodist University, TX, USA Supervisor: Professor Nicos Makris
Sep 2019 – May 2023	Southern Methodist University , Lyle School of Engineering, Dept. of Civil and Environmental Engineering, Dallas, TX, USA Graduate Research Assistant & Teaching Assistant
Mar 2017 – Aug 2019	City, University of London , School of Mathematics, Computer Science and Engineering, London, UK Adjunct Lecturer, Laboratory demonstrator
Apr 2016 – Jun 2011	Bridge Engineer, Site Engineer Greece, Germany, UK

Publications

Refereed Journal Publications

- J12. D Forcellini, and **KN Kalfas**. Framework to quantify the impact of deterioration on the seismic resilience (SR) of structures, *Structure and Infrastructure Engineering*, (under review)
- J11. **KN Kalfas**, L Cao, U El Shamy, JM Ricles, and N Makris. Response of pressurized sand dampers in harsh environments: Extreme temperatures and humidity, ASCE, *Journal of Structural Engineering*, (under review)
- J10. D Forcellini, **KN Kalfas**, and HH Tsang (2025). 3-D numerical modeling of geotechnical seismic isolation system for mitigating liquefaction-induced damage potential, ASCE, *International Journal of Geomechanics*, (under review)
- J9. **KN Kalfas**, N Vaiana, and N Makris (2025). A rate-independent phenomenological model for the characterization of pressurized sand dampers, ASCE, *Journal of Engineering Mechanics*, **151**(4), pp: 04025007, doi: [10.1061/JENMDT/EMENG-7959](https://doi.org/10.1061/JENMDT/EMENG-7959)
- J8. M Karimipetanlar, U El Shamy, **KN Kalfas**, and N Makris (2024). The influence of particle shape on crushing pattern and energy dissipation within a pressurized sand damper, *Computers and Geotechnics*, **166**, pp: 106020, doi: <https://doi.org/10.1016/j.compgeo.2023.106020>

- J7. M Karimipetanlar, U El Shamy, **KN Kalfas**, and N Makris (2023). Numerical simulations of particle behavior and breakage within a pressurized sand damper subjected to cyclic loading, ASCE, *Journal of Engineering Mechanics*, **150**(1), pp: 04023106, doi: <https://doi.org/10.1061/JENMDT.EMENG-7365>
- J6. **KN Kalfas**, N Makris, and U El Shamy (2023). Assessment of the design parameters of pressurized sand dampers from component testing, ASCE, *Journal of Engineering Mechanics*, **149**(10), pp: 04023072, doi: <https://doi.org/10.1061/JENMDT.EMENG-7013>
- J5. D Forcellini, and **KN Kalfas** (2022). Inter-story seismic isolation for high-rise buildings, *Engineering Structures*, **275**, pp. 115175, doi: <https://doi.org/10.1016/j.engstruct.2022.115175>
- J4. **KN Kalfas**, N Ghorbani Amirabad, and D Forcellini (2021). The role of shear modulus on the mechanical behavior of elastomeric bearings when subjected to combined axial and shear loads, *Engineering Structures*, **248**, pp. 113248, doi: <https://doi.org/10.1016/j.engstruct.2021.113248>
- J3. N Makris, and **KN Kalfas** (2021). The eigenvalues of a partially embedded flexural, prismatic column, *Earthquake Engineering & Structural Dynamics*, **50**(13), pp. 3403-3420, doi: <https://doi.org/10.1002/eqe.3515>
- J2. **KN Kalfas**, SA Mitoulis, and D Konstantinidis (2020). Influence of steel reinforcement on the performance of elastomeric bearings, ASCE, *Journal of Structural Engineering*, **146**(10), pp: 04020195, doi: [https://doi.org/10.1061/\(ASCE\)ST.1943-541X.0002710](https://doi.org/10.1061/(ASCE)ST.1943-541X.0002710)
- J1. **KN Kalfas**, SA Mitoulis, and K Katakalos (2017). Numerical study on the response of steel-laminated elastomeric bearings subjected to variable axial loads and development of local tensile stresses, *Engineering Structures*, **134**, pp. 346-357, doi: <https://doi.org/10.1016/j.engstruct.2016.12.015>

Book Chapters

- B1. **KN Kalfas**, and D Forcellini (2022). *Analytical formulas of the mechanical behavior of rubber bearings considering the isolator non-linearities and the influence of shear modulus*. Chapter 13 in *Seismic Evaluation, Damage, and Mitigation in Structures*, P Awoyera and I. Mansouri (eds.), Elsevier.

Refereed Conference Publications & Presentations

- C15. N Makris, and **KN Kalfas**. (2025). Component testing and phenomenological modelling of the pressurized sand damper, In *Proc. of the 19th World Conference on Seismic Isolation, Energy Dissipation and Active Vibration Control of Structures*, September 15–19, 2025, Berkeley, CA
- C14. **KN Kalfas**, N Vaiana, and N Makris. (2025). Characterization of the pressurized-sand dampers with a newly developed uniaxial model, In *Proc. of the 10th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, June 16–18, 2025, Rhodes Island, GR
- C13. **KN Kalfas**, and N Makris. (2025). Experimental campaign of the rate-independent pressurized sand dampers, In *Proc. of the 10th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, June 16–18, 2025, Rhodes Island, GR
- C12. **KN Kalfas**, L Cao, JM Ricles, and N Makris. (2024). Supplemental damping of rocking systems coupled with pressurized sand dampers, In *Proc. of the IABSE Congress “Beyond Structural Engineering in a Changing World”*, September 25–27, 2024, San Jose, CR
- C11. **KN Kalfas**, and N Makris. (2024). Component testing of pressurized sand dampers to assess the effect of design parameters, In *Proc. of the IABSE Congress “Beyond Structural Engineering in a Changing World”*, September 25–27, 2024, San Jose, CR
- C10. **KN Kalfas**, and N Makris. (2024). Component testing of cost-effective pressurized sand-dampers, In *Proc. of the 18th World Conference of Earthquake Engineering*, June 30–July 5, 2024, Milan, IT
- C9. **KN Kalfas**, and D Forcellini. (2023). Seismic response of a 20-story steel MRF structure equipped with inter-story rubber bearings, In *Proc. of the EURO DYN 2023, XII International Conference on Structural Dynamics*, July 2–5, 2023, Delft, ND
- C8. D Forcellini, and **KN Kalfas**. (2023). 3D Numerical simulations of multi-layered elastomeric bearings (EB) subjected to combined vertical and horizontal loads, In *Proc. of the 9th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, June 12–14, 2023, Athens, GR
- C7. **KN Kalfas**, and N Makris. (2022). Estimation of the design parameters of pressurized sand dampers from experiments, In *Proc. of the Engineering Mechanics Institute Conference 2022 (EMI 2022)*, May 31–June 3, 2022, Baltimore, MD — **1st Prize Winner – Dynamics Student Paper Competition**

- C6. **KN Kalfas**, SA Mitoulis, and D Konstantinidis. (2021). Quantifying damage in the steel shims of seismic isolation rubber bearings due to support rotation, In *Proc. of the IABSE Congress Ghent “Structural Engineering for Future Societal Needs”*, September 22–24, 2021, Ghent, BE
- C5. **KN Kalfas**, and D Forcellini. (2020). A developed analytical non-linear model of elastomeric bearings verified with numerical findings, In *Proc. of the EUROdyn 2020, XI International Conference on Structural Dynamics*, June 22–24, 2020, Athens, GR
- C4. **KN Kalfas**, A Camara, and B McKinley. (2018). Numerical analysis of wired connections of the reinforcement bars of steel cages: the slash-tying technique, In *Proc. of the 40th IABSE Symposium “Tomorrow’s Megastructures”*, September 19–21, 2018, Nantes, FR — **1st Prize Winner – My Thesis in 180s**
- C3. **KN Kalfas**, and SA Mitoulis. (2017). Performance of steel-laminated rubber bearings subjected to combinations of axial loads and shear strains, *Procedia Engineering*, **199**, pp. 2979-2984, doi: <https://doi.org/10.1016/j.proeng.2017.09.533>, In *Proc. of the EUROdyn 2017, X International Conference on Structural Dynamics*, September 10–13, 2017, Rome, IT
- C2. D Forcellini, SA. Mitoulis, and **KN Kalfas**. (2017). Study on the response of elastomeric bearings with 3D numerical simulations and experimental validation, In *Proc. of the 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering*, June 15–17, 2017, Rhodes Island, GR
- C1. **KN Kalfas**, SA Mitoulis, and K Katakakos. (2017). Numerical study on bridge elastomeric bearings subjected to large shear strains with emphasis on local tension, In *Proc. of the 16th World Conference of Earthquake Engineering*, January 9–13, 2017, Santiago, CI

Refereed Conference Publications & Presentations (Extended Abstracts: EA)

- EA6. **KN Kalfas**, and N Makris. (2022). Component testing of a sustainable pressurized sand damper for response modification of structures, In *Proc. of the ICONHIC2022, 3rd International Conference on Natural Hazards & Infrastructure*, July 5–7, 2022, Athens, GR
- EA5. **KN Kalfas**, and D Forcellini. (2022). Closed-form solutions for the description of stability of elastomeric bearings, In *Proc. of the ICONHIC2022, 3rd International Conference on Natural Hazards & Infrastructure*, July 5–7, 2022, Athens, GR
- EA4. **KN Kalfas**, and N Makris. (2022). Testing of the prototype and sustainable pressurized sand damper for the response modification of structures, In *Proc. of the 12th National Conference on Earthquake Engineering (12NCEE)*, June 27–July 1, 2022, Salt Lake City, UT
- EA3. **KN Kalfas**. (2022). Pressurized sand damper as a sustainable solution for the response modification of structures, In *Proc. of the 24th Young Researchers’ Conference, Institution of Structural Engineers (24 YRC IStructE)*, March 15, 2022, Virtual-London, UK — **2nd Prize Winner – Poster Competition**
- EA2. IS González, and **KN Kalfas**. (2018). An ecological sanitation project towards the well-being of the patients and the sustainability of the Kumi Hospital in Uganda, In *Proc. of the Global Engineering Congress (GEC2018)*, October 22–26, 2018, London, UK — **2nd Prize Winner**
- EA1. E Efthymiou, **KN Kalfas**, and I Flower. (2017). Engineers for Overseas Development (EfOD): Inspiration and development of young designers through humanitarian aid, In *Proc. of the IABSE Conference Bath*, April 19–20, 2017, Bath, UK

Conference Presentations (Abstracts: A)

- A9. **KN Kalfas**, N Vaiana, and N Makris. (2025). Phenomenological modeling of the pressurized sand dampers, In *Proc. of the Engineering Mechanics Institute Conference 2025 (EMI 2025)*, May 27–30, 2025, Anaheim, CA
- A8. **KN Kalfas**, L Cao, JM Ricles, and N Makris. (2025). Seismic hazard mitigation of a CLT rocking wall–pressurized sand damper system: A real-time hybrid simulation approach, In *Proc. of the Engineering Mechanics Institute Conference 2025 (EMI 2025)*, May 27–30, 2025, Anaheim, CA
- A7. **KN Kalfas**, and N Makris. (2024). The pressurized sand-damper: A low-cost, long-stroke, rate/temperature independent energy dissipation device, In *Proc. of the Engineering Mechanics Institute Conference 2024 (EMI 2024)*, May 28–31, 2024, Chicago, IL
- A6. **KN Kalfas**, N Vaiana, and N Makris (2024). Characterization of pressurized sand dampers response with the Vaiana-Rosati model, In *Proc. of the Engineering Mechanics Institute Conference 2024 (EMI 2024)*, May 28–31, 2024, Chicago, IL

A5. L Cao, **KN Kalfas**, N Makris, and JM Ricles. (2023). Real-time hybrid simulation of a CLT rocking wall system equipped with pressurized sand dampers for seismic hazard mitigation, In *Proc. of the Engineering Mechanics Institute Conference 2023 (EMI 2023)*, June 6–9, 2023, Atlanta, GA

A4. **KN Kalfas**, and N Makris. (2023). Design and component testing of pressurized sand-dampers: Effects of the design parameters, In *Proc. of the Engineering Mechanics Institute Conference 2023 (EMI 2023)*, June 6–9, 2023, Atlanta, GA

A3. M Karimipetanlar, U El Shamy, **KN Kalfas**, and N Makris. (2023). Numerical simulations of particle behavior and breakage within a pressurized sand damper subjected to cyclic loading, In *Proc. of the Engineering Mechanics Institute Conference 2023 (EMI 2023)*, June 6–9, 2023, Atlanta, GA

A2. **KN Kalfas**, and N Makris. (2022). Design and component testing of pressurized sand dampers for the response modification of structures, In *Proc. of the 13th HSTAM 2022 International Congress on Mechanics*, August 24–27, 2022, Patras, GR

A1. U El Shamy, E Sabi, **KN Kalfas**, and N Makris. (2022). Characterization of energy dissipation during cyclic loading of a sand damper, In *Proc. of the Engineering Mechanics Institute Conference 2022 (EMI 2022)*, May 31–June 3, 2022, Baltimore, MD

Poster Presentations (Posters: P)

P7. **KN Kalfas**. (2024). Design and component testing of the long-stroke and rate-independent pressurized sand damper, in *Natural Hazards Research Summit 2024*. DesignSafe-CI. <https://doi.org/10.17603/ds2-fdr3-5963>; May 14–15, 2024, College Station, MD

P6. **KN Kalfas**, and D Forcellini. (2024). Seismic hazard mitigation of tall buildings with mid-level isolation, *EERI 2024 Annual Meeting*, April 9–12, 2024, Seattle, WA

P5. **KN Kalfas**, L Cao, JM Ricles, and N Makris. (2024). Seismic response of rocking structures equipped with pressurized sand dampers through real-time hybrid simulations, *2nd NHERI Computation Symposium*, February 1–2, 2024, Los Angeles, CA

P4. **KN Kalfas**. (2022). Can we protect our structures sustainably against natural hazards?, *Research & Innovation Week*, March 28–April 1, 2022, SMU, Dallas, TX, USA — **1st Prize Winner**

P3. **KN Kalfas**. (2021). An innovative and sustainable solution for the protection of buildings and bridges: The pressurized sand damper, *Lyle Research Days 2021*, November 11–12, 2021, SMU, Lyle School of Engineering, Dallas, TX, USA — **2nd Prize Winner**

P2. **KN Kalfas**. (2021). The dynamics of utility poles by considering soil-structure interaction (SSI), *SMU Research Days 2021*, March 3, 2021, Southern Methodist University, Dallas, TX, USA — **1st Prize Winner**

P1. **KN Kalfas**, B McKinley, and A Camara. (2018). The strength and stability of steel reinforcement cages: Improving safety of construction site personnel by avoiding misunderstood collapses during construction, *STEM for Britain 2018 Exhibition*, March 12, 2018, Houses of Commons, London, UK

Technical Reports

TR2. JA Dieppa Ortiz, L Cao, JM Ricles, **KN Kalfas**, and N Makris. (2022). *Real-time hybrid simulations of a self-centering CLT wall system with pressurized sand dampers*, Research Experiences for Undergraduates (REU), Natural Hazards Engineering Research Infrastructures (NHERI) 2022, DesignSafe-CI, doi: <https://doi.org/10.17603/ds2-t4a3-dx65>

TR1. E Roman Cardona, L Cao, JM Ricles, **KN Kalfas**, and N Makris. (2022). *Characterization test of pressurized sand damper using the Bouc-Wen model*, Research Experiences for Undergraduates (REU), Natural Hazards Engineering Research Infrastructures (NHERI) 2022, DesignSafe-CI, doi: <https://doi.org/10.17603/ds2-8vxx-tb47>

Invited speaker

2024 Lehigh University, ATLSS Experimental Facilities; NHERI Lehigh Seminar Series: “*Design, component testing and application of the low-cost, robust, resilient, and sustainable pressurized sand damper for the protection of civil structures*”, Webinar, October 31st, 2024

2024 University of Naples Federico II; Short course on *Hysteretic Mechanical Systems*: “*Pressurized sand dampers: experimental tests and phenomenological modeling*”, Naples, IT, April 29th, 2024

2023 Lehigh University, ATLSS Experimental Facilities; NHERI Lehigh RTMD Researcher Workshop: “*Seismic hazard mitigation with pressurized sand dampers and their response in extreme temperatures*”, Bethlehem, PA, November 16th, 2023

- 2022 Ministry of Infrastructure and Water Management, Dept. of Bridges and Structures (Netherlands); Seminar: Earthquakes and Bridges: “*Response-modification devices – Review of current challenges and advances*”, Virtual, March 14th, 2022
- 2021 Università degli Studi della Repubblica di San Marino, Dept. of Civil and Environmental Engineering; Seminar series: “*Seismic isolation – Review of current challenges of steel reinforced elastomeric bearings*”, San Marino, SM, June 4th, 2021
- 2019 Temporary Works forum; Lecture: “*Strengthening and stability of steel reinforcement cages at their temporary state – Progress and future*”, City, University of London, London, UK, March 20th, 2019
- 2017 Lunch & Learn with JACOBS Chelmsford office; Seminar Series: “*Alleviating poverty through volunteering and engineering*”, JACOBS, Chelmsford, UK, July 14th, 2017

Distinctions and awards

- 2025 **NSF Travel Award:** Attend the NHERI Summer Institute for Early-Career Faculty, University of Texas at San Antonio, TX; June 11-13, 2025
- 2024 **NSF Primary Travel Award:** Attend the Natural Hazards Research Summit; College Park, MD; funds provided by the NSF (Publication: P7)
- 2024 **Registration Grant and Travel Award:** Attend the 2024 EERI Annual Meeting; Seattle, WA; funds provided by the U.S. Federal Emergency Management Agency (FEMA), and Computers & Structures, Inc. (CSI) (Publication: P6)
- 2024 **Travel Grant: NSF NHERI SimCenter at UC Berkeley;** 2nd NHERI Computation Symposium; UCLA Samueli School of Eng, Los Angeles, CA (Publication: P5)
- 2023 **ASCE O. H. Ammann Research Fellowship in Structural Engineering**