Serdar Selamet

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EDUCATION

Princeton University - Ph.D. in Civil and Environmental Engineering, 2011
Thesis: "Behavior, Design and Finite Element Modeling of Shear Connections under Fire Hazard, Advisor: Maria Garlock"

Duke University - B.S. in Civil and Environmental Engineering, 2006

RESEARCH INTERESTS

• Structural Fire Engineering • Wildfire Engineering • Performance-Based Design • Computational Modeling • Multi-Hazard Resilience

ACADEMIC POSITIONS

Adjunct Lecturer, 2024-present
Department of Civil and Environmental Engineering, Stanford University

UPS Foundation Visiting Faculty (Associate Professor), 2023-2024
Department of Civil and Environmental Engineering, Stanford University

Associate Professor, 2012-2024
Department of Civil Engineering, Bogazici University, Istanbul, Turkey

EMPLOYMENT

Manager, 2023-present
Thermal Sciences, Exponent Scientific and Engineering Consulting Firm, Menlo Park

OTHER ACADEMIC EMPLOYMENTS

Newton Programme Visiting Faculty, 2016-2017
University of Manchester, School of Mechanical, Aerospace and Civil Engineering

Visiting Research Scholar, 2014
UC Berkeley, Department of Civil and Environmental Engineering

Post-Doc, 2011
Princeton University, Department of Civil and Environmental Engineering

SELECTED GRANTS & FELLOWSHIPS

- Co-PI: NSF - CMMI 2524950: RAPID: Infrastructure Resilience and Impact Study for Wildfire-affected Infrastructure in Los Angeles IRIS-Wildfire (2025-2026), $200K
- UPS Foundation Visiting Professor, Stanford University (2023-2024)

- PI: Scientific and Technological Research Council of Turkey "TUBITAK 1002" Start-up R&D Project Grant (2019-2020), $35K
- PI: Bogazici University Scientific Research Project BAP Doctoral Project Support (2017-2020), $100K
- Co-PI: Royal Society of Engineering: Newton Collaborative Research Programme (2016-2017), $85K
- PI: Scientific and Technological Research Council of Turkey "TUBITAK 3001" Start-up R&D Project Grant (2015-2016), $60K
- PI: European Commission "Marie Curie International Incoming Fellowship" IIF (2013-2015), $230K
- PI: Bogazici University Scientific Research Project BAP Standard Project Support (2013-2016), $85K

HONORS & AWARDS

- Project Performance Award to TUBITAK project 114M791 "Fire Performance of Steel Connections in Composite Floor Systems" (2018)
- TUBITAK Award for European Union Funded FP7 Research Projects (2014)
- Best Teacher Award in School of Engineering, Bogazici University (2014)
- Princeton Civil Engineering Graduate Prize (2006)
- International Honors Program at Duke University (2006)
- Pratt Undergraduate Research Fellowship at Duke University (2005-2006)
- Helga Wilde Bessent Scholarship for German Language and Literature (2004)
- Junior Scholar at Miami University, Oxford, OH (2001)

TEACHING EXPERIENCE

- Stanford University (2023–Present) – CEE 284F Fire Engineering Design for Buildings
- Bogazici University (2012–2023) – CE 246: Strength of Materials, CE 355: Structural Analysis, CE 492: Capstone Structural Design, CE 502: Introduction to Finite Element Analysis, CE 58S: Advanced Behavior and Design of Steel Structures, CE 49S: Fire Engineering Design

FIRE PROTECTION ENGINEERING EXPERIENCE

- Fire origin and cause investigations per NFPA 921/1033; experience with residential fires, explosions, and hazardous materials.
- Failure analysis of sprinklers, fire-rated walls, firestopping, and façade (cladding) fire risk in high-rise buildings.
- Performance-based fire engineering using CFD, zone modeling, and egress analysis; structural fire engineering with Abaqus, OpenSees, and SAFIR.
- Led multi-disciplinary teams on fire protection design and wildfire risk; developed predictive models for vegetation ignition from electrical conductor failures.
- Certified in HAZWOPER; applied knowledge of fire and flammability testing and international building codes (ICC, NFPA, EU, Turkey).

Key Projects:

- Wildfire Risk Mitigation (2023–2024): Developed numerical models predicting vegetation ignition from electrical conductor failures.
- Central Bank of Turkey Tower (2021–2022): Lead Fire Engineer for a 60-story tower; optimized Spray-applied fire resistive material to reduce material use by 350 tons.
- Istanbul Airport (2020): Conducted fire load estimation and performance-based analysis for large-span structures.
- Anagold Mining Facilities (2016–2017): Performed thermo-mechanical fire analysis of industrial buildings with hazardous materials.

PROFESSIONAL SERVICE & LEADERSHIP

- Editorial Board Member, Fire Safety Journal
- Co-lead, SFPE WUI Fire Research Work Group
- SFPE Professional Member
- Principal Member, NFPA Hazard and Risk of Contents and Furnishings Committee
- Member, ASCE/SEI Fire Protection Committee
- Member, SFPE Leadership Council
- Scientific Committee Member, IAFSS, Structures in Fire (SIF), and Eurosteel

CERTIFICATIONS

- CFEI: Certified Fire and Explosion Investigator - 28774-17026
- California State Fire Marshal: Fire Investigation 1A - SFT ID:5335-2258
- HAZWOPER Certification (40 hour) – REG34256
- Certified Civil Engineer (Turkish Chambers of Civil Engineers)
- FE Exam North Carolina Board of Examiners for Engineers and Surveyors

CITATION METRICS

ORCID: 0000-0001-9444-470X | **Web of Science ID:** H-9465-2012
Google Scholar: Citations 677 • h-index 15 • i10-index 18

REFERENCES

- Asif Usmani
  Professor, Department Chair
  The Hong Kong Polytechnic University, Hong Kong
  Email: asif.usmani@polyu.edu.hk

- Maria E. Garlock (PhD. Advisor)
  Daniel Tsui Professor
  Princeton University, NJ
  Email: mgarlock@princeton.edu

- Negar Elhami-Khorasani
  Associate Professor
  University at Buffalo, NY
  Email: negarkho@buffalo.edu

- Serdar Soyoz
  Professor, Department Chair
  Bogazici University, Istanbul, Turkey
  Email: serdar.soyoz@bogazici.edu.tr

- Yong Wang
  Professor
  University of Manchester, UK.
  Email: yong.wang@manchester.ac.uk

BOOKS

(1) **Selamet S,** (2025). Book Chapter. Construction Materials and Their Properties for Fire Resistance and Insulation, Woodhead Publishing Series in Civil and Structural Engineering p3-17

(2) **Selamet S**, (2022). Textbook. Fire Engineering (in Turkish). Nobel Academic Publishing. July, 282 pages. ISBN 978-625-417-965-5.

PUBLICATIONS

(1) **Selamet S**, Orgev AA (2025). Seismic performance of chevron-braced steel buildings using FEMA P695 methodology. Turkish Journal of Civil Engineering 36/6 https://doi.org/10.18400/tjce.1521408.

(2) **Selamet S,** Ayva B (2023). Car fires in multi-story parking garages. Turkish Journal of Civil Engineering 34 (3): 83-110, https://doi.org/10.18400/tjce.1265492.

(3) **Selamet S**, Ozer AY, Ildan KB (2023). Experimental Study on the Fire Performance of Prestressed Steel Parallel Wire Strands. Engineering Structures 280, 115709. https://doi.org/10.1016/j.engstruct.2023.115709

(4) Dundar U, **Selamet S** (2023). Fire load and fire growth characteristics in modern high-rise buildings. Fire Safety Journal 135, 103710. https://doi.org/10.1016/j.firesaf.2022.103710

(5) Jodi M, **Selamet S**, Wang YC (2022). City-wide fire vulnerability map of high-rise residential buildings. Fire Technology. https://doi.org/10.1007/s10694-022-01344-w

(6) Calayir M, **Selamet S**, Wang YC (2022). Post-earthquake fire performance of fire door sets. Fire Safety Journal, 130, 103589.

(7) **Selamet S**, Yolacan TF (2018). Steel frame-concrete slab composite floor fire resistance experiment. Teknik Dergi, 28: 2131-2145.

(8) **Selamet S** (2017). Thermal Gradient Estimation due to Surface Heat Exchange in Steel I-Sections. Journal of Structural Engineering-ASCE, 143(9): 04017101.

(9) **Selamet S**, Bolukbas C (2016). Fire resilience of shear connections in a composite floor: Numerical investigation. Fire Safety Journal, 81: 97-108.

(10) **Selamet S**, Bolukbas C (2015). Fire performance of single plate shear connections in a composite floor. Journal of Structural Fire Engineering, 7(4): 316-327.

(11) **Selamet S**, Garlock ME (2014). Fire Resistance of Shear Connections. Fire Safety Journal, 68: 52-60.

(12) **Selamet S**, Garlock ME (2013). Plate buckling in wide-flanged beams considering nonlinear steel behavior at elevated temperatures. Journal of Structural Engineering, ASCE, 139(11): 1853-1865.

(13) Pakala P, Kodur V, **Selamet S**, Garlock M (2012). Fire behavior of shear angle connections in a restrained steel frame. Journal of Constructional Steel Research 77: 119-30.

(14) **Selamet S**, Garlock ME (2012). Predicting the maximum compressive beam axial force during fire considering local buckling. Journal of Constructional Steel Research 71: 189-201.

(15) **Selamet S**, Garlock ME (2010). Robust fire design of single plate shear connections. Engineering Structures, 32(8): 2367 – 2378.

(16) Garlock ME, **Selamet S** (2010). Modeling and behavior of steel plate connections subject to various fire scenarios. Journal of Structural Engineering, 136(7): 897–906.

CONFERENCE PROCEEDINGS

(1) **Selamet S.**, Chau S., Ramirez S., Wang L. Predicting Structural Fire Response by AI (2025). SFPE AI Summit, 29-30 May. UC Berkeley.

(2) **Selamet S**. A New Teaching Module for Structural Fire Analysis on NSF NHERI SIMCENTER (2025). NSF NHERI Simcenter Computational Symposium, Feb 5-7. UCLA

(3) **Selamet S.** Understanding Façade Fires (2024). SFPE Fire Safety Conference and Expo Copenhagen, Denmark 16-18 April.

(4) Orgev AA, **Selamet S**, Vatansever C (2023). Seismic performance of multistory chevron-braced steel structures with yielding beams. ce/papers 6 No.3-4. https://doi.org/10.1002/cepa.2395.

(5) **Selamet S** (2023). Car fires in multi-story parking garages. SFPE European Conference & Expo, Berlin, Germany.

(6) **Selamet S** (2022). Determining SFRM thermal properties through fire tests on I-beam sections. 12th International Conference on Structures in Fire (SIF), Hong Kong.

(7) **Selamet S** (2022). Post-fire Stability and Performance of Tall Steel Buildings, Engineering Mechanics Institute, Baltimore, MD USA.

(8) Dundar U, **Selamet S** (2021). FDS Analysis of a High-Rise Residential Building in Istanbul, 14th International Congress on Advances in Civil Engineering (ACE).

(9) Onursal A, **Selamet S** (2019). Türkiye'deki Üniversitelerde Yangın Mühendisliği Müfredat Programı, 6th International Scientific Research Congress (UBAK). Şanlıurfa, Turkey.

(10) Jodi M, **Selamet S** (2019). Yangın Koşulları Altındaki Yüksek Katlı Konutlarda Tahliye, 6th International Scientific Research Congress (UBAK). Şanlıurfa, Turkey.

(11) **Selamet S**, Onursal A (2019). Stability of Steel Portal Frames in Industrial Buildings under Natural Fire Conditions, International Civil Engineering and Architecture Conference (ICEARCH). Trabzon, Turkey.

(12) Jones M, **Selamet S**, Wang Y, Calis M. (2017). Fire safety of high-rise residential buildings: scope of fire engineering and comparison between UK and Turkish Practice. ASFE, Manchester, UK.

(13) Gernay T, **Selamet S**, Tondini N, Khorasani NE, (2016). Urban infrastructure resilience to fire disaster: An overview. World Multidisciplinary Civil Engineering-Architecture-Urban Planning Symposium (WMCAUS) - Procedia Engineering, Prague, Czech Republic

(14) Yolacan TF, **Selamet** S (2016). Thermo-Mechanical Behavior of Steel Beam-Concrete Slab Composite Floors. Advances in Civil Engineering, Istanbul, Turkey.

(15) **Selamet S**, Akbas E (2015). Reliability risk assessment of high-rise buildings in case of fire. 2nd International Conference on Performance-based and Lice-cycle Structural Engineering (PLSE), Brisbane, Australia.

(16) **Selamet S**, Uzun M (2015). A novel and efficient finite element software for heat transfer: FEHEAT. 1st International Conference on Structural Safety under Fire and Blast (CONFAB), Glasgow, Scotland

(17) **Selamet S**, Ozdemir T, Bolukbas C (2014). Fire performance of steel shear connections in a composite floor. 8th International Conference on Structures in Fire (SIF), Shanghai, China.

(18) Ozdemir T, **Selamet S** (2013). Yüksek katlı yapılarda yangının çökmeye etkisi (in Turkish). TUYAK Third Symposium and Exhibition on Fire and Security, Istanbul, Turkey.

(19) **Selamet S** (2013). The impact of fire scenario to the collapse of a tall structure. SEMC Fifth International Conference on Structural Engineering, Mechanics and Computation, Cape Town, South Africa.

(20) Kilic SA, **Selamet S** (2013). Symmetric and asymmetric collapse mechanisms of a multi-story steel structure subjected to gravity and fire. ASCE Structures Congress: Bridging your passion with your profession, Pittsburgh, PA.

(21) **Selamet S** (2013). Fire performance of an unprotected composite beam with semi-rigid end restraints. ASFE Applications of Structural Fire Engineering, Prague Czech Republic.

(22) **Selamet S**, Garlock M (2011). A comparison between the single plate and angle shear connection performance under fire. ASCE Structures Congress: Don't Gamble on your Future, Las Vegas, NV.

(23) **Selamet S**, Garlock ME. (2010). Local buckling study of flanges and webs in I-shapes at elevated temperatures. ASCE Structures Congress, 1592–1603, Orlando, FL.

(24) **Selamet S**, Garlock M (2010). Improved details for fire-induced steel single plate shear connections. In Proceedings of the 6th International Conference on Structures in Fire (SIF), pages 621–628, East Lansing, MI.

(25) **Selamet S**, Garlock M (2010). Guidelines for modeling three dimensional structural connection models using finite element methods. ECCS International Symposium Steel Structures: Culture and Sustainability 2010, pages 351–360, Istanbul, Turkey.

(26) **Selamet S** and Garlock ME (2009). Modified connection details for single plate steel connections under fire. ASCE Structures Congress: Don't Mess with Structural Engineers, pages 642–649, Austin, TX.

(27) **Selamet S** and Garlock M (2008). Behavior of steel plate connections subject to various fire scenarios. In Proceedings of the 5th International Conference on Structures in Fire (SIF), pages 139–149, Singapore.