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Professional Preparation

BS University of California, Davis. Civil Engineering, B.S. 2005, Davis, CA
MS Stanford University. Civil Engineering, 2007 Stanford, CA
MA Princeton University. Civil Engineering, 2008 Princeton NJ
PhD Northwestern University. Theoretical and Applied Mechanics, 2011, Evanston, IL

Appointment

Assistant Professor, Columbia University, since 2014
Senior Member of Technical Staff, Sandia National Laboratories, 2013-2014
Postdoctoral Appointee, Sandia National Laboratories, 2011-2013
Visiting Scholar, California Institute of Technology, 2010-2011

Selected Awards and Honors: *NSF Early CAREER Award* (2019), *ASCE EMI Leonardo da Vinci Award* (2018), *Zienkiewicz Numerical Methods in Engineering Prize* (2017), *AFOSR Young Investigator Program Award* (2017), Dresden Fellowship, (2016), Sandia Recognition Award, Department of Energy (2016), *ARO Young Investigator Program Award* (2015), Provost Diversity Award (2015), Claude R. Hocott Memorial Lectureship, UT Austin (2015), Best Poster Award, USNCCM, San Diego (2015), *Caterpillar Best Paper Prize*, Springer-Verlag (2014), John W. and Ernest L. Heinrich Scholarship, University of California Davis (2004). American Public Works Associate Scholarship, American Public Works Association (2004).

Selected Invited Seminars and Keynotes: In total, more than 25 travel scholarships to various conferences and over 45 invited talks at Universities (e.g. Brown, Harvard, Stanford, MIT, Duke, CMU, UT Austin, Georgia Tech, RPI, Penn State, UC Davis, TU Dresden, Ruhr-Universität Bochum), National Laboratories (e.g. Sandia, Los Alamos, Lawrence Livermore, Army Cold Region Research Laboratory) and industries (e.g. Shell, Exxonmobil, Itasca Consulting Group, IBM).

Representative Publications (Underlines indicate current or former students, " indicates postdoc, over 40 journal articles published, including 10 in CMAME and 5 in IJNME)

1. K. Wang, **W.C. Sun**, Meta-modeling game for deriving theory-consistent, microstructure-based traction-separation laws via deep reinforcement learning, *Comput Methods Appl Mech Eng*, in press, 2019. [[PDF](#)]
2. K. Wang, **W.C. Sun**, A multiscale multi-permeability poroplasticity model linked by recursive homogenizations and deep learning, *Comput Methods Appl Mech Eng*, 334(1):337-380, 2018. [[PDF](#)]
3. S. Na, **W.C. Sun**, Computational thermomechanics of crystalline rock. Part I: a combined multi-phase-field/crystal plasticity approach for single crystal simulations, *Comput Methods Appl Mech Eng*, 338:657-691, 2018. [[PDF](#)]
4. S. Na, **W.C. Sun**, Computational thermo-hydro-mechanics for multiphase freezing and thawing porous media in the finite deformation range, *Comput Methods Appl Mech Eng*, 318:667-700, 2017. [[PDF](#)]
5. **W.C. Sun**, Z. Cai, J. Choo", Mixed Arlequin method for multiscale poromechanics problems, *Int J Numer Methods Eng*, 111:624-659, 2017 [[PDF](#)]
6. **W.C. Sun**, A stabilized finite element formulation for monolithic thermo-hydro-mechanical simulations at finite strain, *Int J Numer Methods Eng*, 103(11):798-839, 2015. [[PDF](#)]

best poster competition at USNCCM San Diego)

Professional Services: Reviewer: More than 30 journals. Associate Editor: Computer Modeling in Engineering and Science (Shaofan Li as editor-in-chief) Guest Editor & Editorial Board Member: International Journal of Multiscale Computational Engineering, organizers and co-organizers of over 25 mini-symposium at USNCCM, EMI Conference, AGU Fall Meeting and WCCM, Local committee chair of WCCM New York. Primary or sole PhD advisor of three PhD students/postdoc currently on tenure-track. **Grants and Contracts:** Over 3 million US dollars of research funding (more than 90% from single-PI projects) from DOE, NSF, ARO and, AFOSR.