

NSF BIOGRAPHICAL SKETCH

NAME: Regueiro, Richard

ORCID: 0000-0002-1669-1753

POSITION TITLE & INSTITUTION: Professor, University of Colorado Boulder

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
University of Pennsylvania	Philadelphia, PA	Civil Engineering Systems	BENG	1991
Massachusetts Institute of Technology	Cambridge, MA	Aeronautics and Astronautics	MS	1993
Stanford University	Stanford, CA	Civil and Environmental Engineering	PHD	1998

(b) APPOINTMENTS

2019 - present Professor, University of Colorado Boulder
2018 - present Intermittent Mechanical Engineer, US Army Research Laboratory, Aberdeen, MD
2012 - 2019 Associate Professor, University of Colorado Boulder
2014 - 2014 Academic Visitor, University of Oxford, Engineering Science Department
2014 - 2014 UPS Foundation Visiting Associate Professor, Stanford University
2005 - 2012 Assistant Professor, University of Colorado Boulder
2004 - 2005 Principal Member of Technical Staff, Sandia National Laboratories
1998 - 2004 Senior Member of Technical Staff, Sandia National Laboratories
2002 - 2003 Lecturer, Stanford University, Structural Engineering & Geomechanics Division
1993 - 1998 Graduate Research and Teaching Assistant, Stanford University
1992 - 1993 Draper Fellow, Charles Stark Draper Laboratory
1991 - 1991 Graduate Teaching Assistant, Massachusetts Institute of Technology

(c) PRODUCTS

Products Most Closely Related to the Proposed Project

1. Amirrahmat S, Alshibli K, Jarrar M, Zhang B, Regueiro R. Equivalent continuum strain calculations based on 3D particle kinematic measurements of sand. *International Journal for Numerical and Analytical Methods in Geomechanics*. 2018 June 10; 42(8):999-1015. Available from: <http://doi.wiley.com/10.1002/nag.2779> DOI: 10.1002/nag.2779
2. Yan B, Regueiro R. Three-dimensional discrete element method parallel computation of Cauchy stress distribution over granular materials. *International Journal for Numerical and Analytical Methods in Geomechanics*. 2019 April 10; 43(5):974-1004. Available from: <http://doi.wiley.com/10.1002/nag.2917> DOI: 10.1002/nag.2917
3. Yan B, Regueiro R. A comprehensive study of MPI parallelism in three-dimensional discrete element method (DEM) simulation of complex-shaped granular particles. *Computational Particle Mechanics*. 2018; 5(4):553-577. Available from: <http://link.springer.com/10.1007/s40571-018-0190-y> DOI: 10.1007/s40571-018-0190-y

4. Zhang B, Regueiro R. On large deformation granular strain measures for generating stress–strain relations based upon three-dimensional discrete element simulations. *International Journal of Solids and Structures*. 2015 August; 66:151-170. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0020768315001675> DOI: 10.1016/j.ijsolstr.2015.04.012
5. Yan B, Regueiro R. Definition and symmetry of averaged stress tensor in granular media and its 3D DEM inspection under static and dynamic conditions. *International Journal of Solids and Structures*. 2019 April; 161:243-266. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0020768318304748> DOI: 10.1016/j.ijsolstr.2018.11.021

Other Significant Products, Whether or Not Related to the Proposed Project

1. Regueiro R, Ebrahimi D. Implicit dynamic three-dimensional finite element analysis of an inelastic biphasic mixture at finite strain. *Computer Methods in Applied Mechanics and Engineering*. 2010; 199(29-32):2024-2049. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0045782510000794> DOI: 10.1016/j.cma.2010.03.003
2. Bennett K, Regueiro R, Borja R. Finite strain elastoplasticity considering the Eshelby stress for materials undergoing plastic volume change. *International Journal of Plasticity*. 2016 February; 77:214-245. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0749641915001825> DOI: 10.1016/j.ijplas.2015.10.007
3. Yan B, Regueiro R. Superlinear speedup phenomenon in parallel 3D Discrete Element Method (DEM) simulations of complex-shaped particles. *Parallel Computing*. 2018 July; 75:61-87. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0167819118300826> DOI: 10.1016/j.parco.2018.03.007
4. Zhang B., Regueiro R., Druckrey A., Alshibli K.. Construction of poly-ellipsoidal grain shapes from SMT imaging on sand, and the development of a new DEM contact detection algorithm. *Engineering Computations (Swansea, Wales)*. 2018; 35(2):733-771. Available from: <http://www.scopus.com/inward/record.url?eid=2-s2.0-85046347152&partnerID=MN8TOARS> DOI: 10.1108/EC-01-2017-0026
5. Yan B., Regueiro R.. Large-scale dynamic and static simulations of complex-shaped granular materials using parallel three-dimensional discrete element method (DEM) on DoD supercomputers. *Engineering Computations (Swansea, Wales)*. 2018; 35(2):1049-1084. Available from: <http://www.scopus.com/inward/record.url?eid=2-s2.0-85046344741&partnerID=MN8TOARS> DOI: 10.1108/EC-10-2017-0375

(d) SYNERGISTIC ACTIVITIES

1. Service to the scientific and engineering community outside of immediate organization – *International Journal for Numerical and Analytical Methods in Geomechanics*