MICHAEL ORTIZ

Frank and Ora Lee Marble Professor of Aeronautics and Mechanical Engineering
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EDUCATION:

1982	*Major Field:* Structural, Continuum and Computational Mechanics	Ph.D.	University of California, Berkeley, USA
Thesis Title:	*Topics in Constitutive Theory of Inelastic Solids* *(Thesis Advisor: E.P. Popov)*		
1978	Civil Engineering	M.S.	University of California, Berkeley, USA
1977	Civil Engineering	B.S.	Polytechnic University, Madrid, Spain

CURRENT PROFESSIONAL EXPERIENCE:

2016 - Present	Bonn Research Chair	Institute for Applied Mathematics Bonn University, Germany
2013 - Present	Frank and Ora Lee Marble Professor of Aeronautics and Mechanical Engineering	California Institute of Technology, USA

PREVIOUS PROFESSIONAL EXPERIENCE:

2004-2013	Dotty and Dick Hayman Professor of Aeronautics and Mechanical Engineering	California Institute of Technology, USA
1995-2004	Professor of Aeronautics and Mechanical Engineering	California Institute of Technology, USA
1987-1995	Professor of Engineering	Brown University, USA
1987-1990	Associate Professor of Engineering	Brown University, USA
1984-1987	Assistant Professor of Engineering	Brown University, USA
1983-1984	Research Scientist	Ministry of Public Works, Madrid Spain Computational Hydrodynamics Program, Department of Coasts and Harbors
1982-1983	Postdoctoral Fellow	Ministry of Public Works, Madrid, Spain Department of Mathematics

FELLOWSHIPS AND HONORS:

2019	John von Neumann Medal, US Association for Computational Mechanics (USACM)
2019	Doctorate Honoris Causa, Polytechnic University of Madrid (UPM)
2018	Inducted, UC Berkeley Academy of Distinguished Civil and Environmental Alumni
2016	Journal of the Mechanics and Physics of Solids (JMPS) 60th Birthday Special Volume
2015	Timoshenko Medal, American Society of Mechanical Engineers (ASME)
2014	IUTAM Symposium in honour of 60th Birthday, Burg Schnellenberg (Germany)
2011	Zienkiewicz Prize of the Spanish Association for Numerical Methods in Engineering (SEMNI)
2010	Hans Fischer Senior Fellowship, Institute for Advanced Study, Tech. U. Munich (Germany)
2008	Rodney Hill Prize, International Union of Theoretical and Applied Mechanics (IUTAM)
2007	USACM Computational Structural Mechanics Award (USACM)
2002	Computational Mechanics Award for Research (IACM)
2002	Humboldt Research Award for Senior U.S. Scientists, A. von Humboldt Stiftung (Germany)
2000	ISI Highly Cited Researchers Award, Web of Science
1998	Southwest Mechanics Lecture Series (USA)
1995-1996	Midwest Mechanics Seminar (USA)
1994-1995	Sherman Fairchild Distinguished Scholar, California Institute of Technology
1977-1978	Fulbright Scholarship, University of California, Berkeley

ACADEMY MEMBERSHIP:

2013	Elected Member of the U.S. National Academy of Engineering (NAE)
2007	Elected Fellow of the American Academy of Arts & Sciences (AAAS)
1999	Corresponding Member, Spanish Academy of Engineering

SOCIETY MEMBERSHIP:

2008	Founding member, Activity Group on Mathematical Aspects of Materials Science, U.S. Society for Industrial and Applied Mathematics (SIAM)
2002	Fellow of the International Association for Computational Mechanics (IACM)
1999	Founding member, Spanish Society of Numerical Methods in Engr. (SEMNI)
1997	Fellow, U.S. Association for Computational Mechanics USACM

EDITORIAL BOARDS – Past and Present

2002 – 2008	International Journal of Non Linear Mechanics, Editor
1999	Archive for Rational Mechanics and Analysis, Advisory Editor
1999	Computer Methods in Applied Mechanics and Engineering, Editorial Board
1996	Modeling and Simulation in Materials Science and Engineering, Editorial Board
1996	Journal of Mechanics and Physics of Solids, Editorial Board
1996	International Journal for Numerical Methods in Engineering, Associate Editor
1996	Journal of Applied Mechanics, ASME, Editorial Board
1990-1991	Journal of the Engineering Mechanics Division, ASCE, Associate Editor

COMMITTEES AND ACADEMY MEMBERSHIPS – Past & Present:

		Status
2018 –	U.S. National Academy of Engineering, (NAE): Section 10	Chair
2014 – 2017	U.S. National Academy of Engineering, (NAE): Section 10	Vice Chair
2010 – 2012	U.S. National Academy Sciences (NAS): Committee on Opportunities in Protection Materials Science and Technology for Future Army Applications	Member
2008 – 2009	Lawrence Livermore National Laboratory (LLNL): Chemistry, Materials Earth and Life Sciences Directorate Review Panel	Member
2008	Activity Group on Mathematical Aspects of Materials Science	Co-founder
2007	Committee for the Evaluation of QMU (NRC)	Member
2006 – 2013	Engineering Directorate, Predictive Science Panel (LLNL)	Panel Member
2006 – 2009	Engineering Directorate Review Committee (SNL)	Member
2008 –	Engineering Sciences External Review Panel (LLNL)	Member
2004 – 2006	T-Division Review Committee (LANL)	Member
2004 – 2006	ESA Division Review Committee (LANL)	Member
2004 – 2008	Engineering Directorate Review Committee (LLNL)	Member
2002 – 2007	University of California Science & Technology Panel (UC S&T)	Member
2000 – 2008	U.S. Assoc. Computational Mechanics, Executive Committee (USACM)	Member-at-large
1990 – 1992	Computational Mechanics Committee of the ASCE/EMD (ASCE/EMD)	Chairman
1994	Committee on Application of Expert Systems to Materials Selection During Structural Design (NRC)	Panel Member
1991	Office of Naval Research, Opportunities in Solid and Fluid Mechanics, National Research Council (ONR)	Co-organizer

SYNERGISTIC ACTIVTIES:

		Status
2008 – 2013	Caltech's DoE/PSAAP Center for the Predictive Modeling and Simulation of High Energy Dynamic Response of Materials	Director

PRINCIPAL ORGANISER OF SCIENTIFIC MEETINGS:

2008	SIAM Conf. Math. Aspects of Materials Science, Philadelphia (USA) with S. Müller.
1993	IUTAM Symposium Computational Mechanics of Materials, Providence, RI (USA), with C.F. Shih.

RECENT INSTITUTIONAL RESPONSIBILITIES:

2012 - 2016	Caltech Faculty Board, Elected Faculty Representative

THESIS ADVISOR AND POSTGRADUATE-SCHOLAR SPONSOR:
Doctoral students graduated in the past five years with current affiliation

William Schill	Postdoc, Livermore National Lab, USA	PhD 2019
Arnold Durel Deffo	Asst. Prof., Cal Poly, San Luis Obispo,CA	PhD 2018
Dingyi Sun	Posrtdoc, Brown University, RI, USA	PhD 2018
Trenton Kirchdoerfer	Postdoc, Livermore National Lab, USA	PhD 2017
Brandon Runnels	Asst Prof, Univ, Colorado	PhD 2015
Xin Wang	Asst Prof. Univ. Colorado	PhD 2015
Stefanie Heyden	Postdoc, Univ. Bonn, Germany	PhD 2014
Landry Fokoua Djodom	Researcher, Exelon Corp, USA	PhD 2013

Post-doctoral scholars mentored in the past five years with current affiliation		
Manav Manav	Postdoc, Caltech, USA	Pasadena, CA
Juan Pedro Mendez Granado	Postdoc, Sandia National Lab, USA	Sandia, NM
Hossein Salahshoor Pirsoltan	Postdoc, Caltech, USA	Pasadena, CA
Mauricio Ponga	Asst. Prof, Univ. British Columbia	Vancouver, BC
Amuthan Ramabathiran	Asst Prof. Indian Inst. Tech.	Bombay, India
Xingsheng Sun	Postdoc, Caltech, USA	Pasadena, CA
Kevin Guanyuan Wang	Asst. Prof. Virginia Tech	Blacksburg, VA

INVITED AND PLENARY LECTURES:		**Venue:**
2019	Plenary Lecture, COMPLAS XV International Conference on Computational Plasticity, Fundamentals and Applications	Barcelona, Spain
2019	Plenary Lecture, First Colloquium of the Spanish Theoretical and Applied Mechanics Society (STAMS)	Madrid, Spain
2019	Invited Lecture, Century Fracture Mechanics Summit (CFMS)	Singapore
2019	Invited Lecture, UC3M EUROMECH Colloquium Damage and Failure of Engineering Materials under Extreme Loading Conditions	Madrid, Spain
2019	Invited Lecture, 2nd International Workshop of the SFB 986	Hamburg, Germany
2019	Invited Lecture, USACM Thematic Conference on Uncertainty Quantification in Solid and Structural Materials Modeling.	Univ. Penn, PA, USA
2018	Plenary Lecture, WCCMXIII and PANACM II 13th World Congress in Computational Mechanics	New York, NY
2018	Keynote Lecture, SES 2018, 55th Annual Technical Meeting	Madrid, Spain
2018	Plenary Lecture, EUROMECH, Colloquium 601 Micromechanics of Defects in Crystalline	Seville, Spain
2017	Invited Lecture, IUTAM Symposium on Size Effects in Microstructure and Damage Evolution	DTU, Denmark
2017	Plenary Lecture, ECCOMAS, Computational Modeling of Complex Materials Across the Scales	Paris, France
2017	Plenary Lecture, COMPLAS XIV, International Conference on Computational Plasticity	Barcelona, Spain
2017	Invited Workshop Lecture, Institute for Mathematics and its Applications, Univ. Minnesota	Minneapolis, MN
2017	Invited Lecture, ICF14 14th International Conference on Fracture	Rhodes, Greece
2017	Invited Lecture, Society of Engineering Science (SES) 54th Annual Meeting, Northeastern Univ.	Boston, MA
2017	Invited Seminar Lecture, University of San Diego, Department of Structural Engineering	La Jolla, CA
2016	Invited Seminar Lecture, Columbia University, Aerospace Engineering and Mechanics	New York, NY
2016	Invited Lecture, 24th International Congress of Theoretical and Applied Mechanics (ICTAM 2016)	Montréal, Canada
2016	Invited Lecture, Advances in the Mathematical Analysis of Materials Defects in Elastic Solids	Sissa, Trieste, Italy
2016	Invited Lecture, Banff International Research Center (BIRS), Workshop on Variational Fracture	Banff, Alberta, BC
2015	Plenary Lecture, Numerical treatment of differential and differential-algebraic equations (NUMDIFF-14) Conference	Martin-LutherUniversitat Halle-Wittenberg, Amsterdam
2015	Plenary Lecture, 13th International Conference on Computational Plasticity, Fundamentals and Applications, COMPLAS XIII	Barcelona, Spain
2015	Plenary Lecture, International Conference on Computational Modeling of Fracture and Failure of Materials and Structures (CFRAC)	Paris, France
2014	Invited Lecture, 2014 Fall MRS (Materials Research Society) Meeting	Boston, MA
2014	Plenary Lecture, 11th World Congress on Computational Mechanics, WCCM XI, "Modeling and simulation of fracture and fragmentation	Barcelona, Spain
2014	Invited Lecture, Symposium on New Developments in Defects Mechanics, "Optimal scaling laws in ductile fracture"	UCSD, La Jolla, CA
2013	Plenary Lecture, IUTAM Symposium on "Materials and Interfaces under high strain rate and large deformation"	Metz, France
2013	Plenary Lecture, "V International Conference on Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2013) – A Conference Celebrating the 60th Birthday of Eugenio Oñate	Ibiza, Spain
2013	Invited Lecture, ERC Workshop on "Variational Views in Mechanics and Materials"	Pavia, Italy
2013	Invited Lecture, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), workshop on Mathematics and Mechanics in the search of new Materials	Banff, Canada
2013	Plenary Lecture, 12th International Conference on Computational Plasticity, Fundamentals and Applications (COMPLAS XII)	Barcelona, Spain

2013	Invited Lecture, PIRE Workshop on Evolution Problems for Material Defects	Sissa, Italy
2012	Plenary Lecture, ECCOMAS 2012, European Congress on Computational Methods in Applied Sciences and Engineering	Vienna, Austria
2012	"Optimal-transportation mesh-free (OTM) methods for the simulation of solids and fluid flows," Invited Lecture, 23rd International Congress of Theoretical and Applied Mechanics	Beijing, China
2012	"Optimal transportation and variational methods in computational mechanics," Plenary Lecture, European Solids Mechanics Conference, ESMC2012	Gratz, Austria
2012	Invited Talk, International Conference "Variational Problems with Multiple Scales"	Otranto, Italy
2011	"Model-based Rigorous Uncertainty Quantification In Complex Systems" Invited Lecture, SES 2011 Annual Technical Conference, Erigen Medal Symposium in Honor of Professor Ares Rosakis	Northwestern University
2011	"Model-Based Rigorous Uncertainty Quantification in Complex Systems" Plenary Lecture, COMPLAS, XI International Conference on Computational Plasticity Fundamental and Applications	Barcelona, Spain
2011	"Line Tension as the Dilute Limit of Discrete Dislocations" Invited Lecture, M.P. Ariza and M. Ortiz, "7th International Congress on Industrial and Applied Mathematics (ICIAM11)	Vancouver, Canada
2011	"The Dilute Limit of Discrete Dislocations: Application to Dislocation Junctions" Invited Lecture, M. P. Ariza and Michael Ortiz; 5th International Symposium on Defect and Material Mechanics (ISDMM11)	University of Seville, Spain
2011	"Multiscale models of metal plasticity" Lecture I: Experimental and continuum thermodynamics basis; Invited Lecture Series, Sixth Summer School in Analysis and Applied Mathematics	Rome, Italy
2011	"Multiscale models of metal plasticity" Lecture II: Energetics of dislocations; Invited Lecture Series, Sixth Summer School in Analysis and Applied Mathematics	Rome, Italy
2011	"Multiscale models of metal plasticity" Lecture III: Dilute dislocations and the line tension model; Invited Lecture Series, Sixth Summer School in Analysis and Applied Mathematics	Rome, Italy
2011	"Multiscale models of metal plasticity" Lecture IV: Kinetics and work hardening; Invited Lecture Series, Sixth Summer School in Analysis and Applied Mathematics	Rome, Italy
2011	"Model-Based Rigorous Uncertainty Quantification in Complex Systems" Plenary Lecture, Congress on Numerical Methods in Engineering – CMNE|2011	University of Coimbra, Portugal
2011	"Multiscale Analysis as an Approximation Scheme" Plenary Lecture, SRC Simulation Technology	University of Stuttgart, Germany
2011	"Variational models of dynamic fracture" Invited Lecture, Mini-Workshop on Mathematical Models, Analysis and Numerical Methods for Dynamic Fracture Mathematisches Forschungsinstitut	Oberwolfach, Germany
2011	"Predictive Modeling and Simulation of the Dynamic Response of Materials at Caltech" Invited Lecture, Beijing University of Aeronautics and Astronautics (BUAA) School of Jet Propulsion	Beijing, CHINA
2010	"Model-Based Rigorous Uncertainty Quantification in Complex Systems" Invited Plenary Lecture, MECOM Del Bicentenario 2010, IX Argentinean Congress on Computational Mechanics	Buenos Aires, Argentina
2010	"Multiscale Analysis as a (Lossless) Approximation Scheme" Invited Plenary Lecture, MMM2010, Fifth International Conference on Multiscale Materials Modeling	Freiburg, Germany
2010	"Model-Based Rigorous Uncertainty Quantification in Complex Systems" Invited Lecture, Applied Mathematics Seminar, Warwick Mathematics Seminar	Warwick Mathematics Institute
2010	"Optimal Transportation Meshfree Approximation Schemes for Fluid and Plastic Flows" Distinguished Lecture Series in Structural Mechanics, The Civil & Environmental Engineering Department	UCLA, Los Angeles, CA
2010	"Shock-Induced sub-grain microstructures in energetic polycrystals" Invited Lecture, TMS 2010 139th Annual Meeting, Washington State Convention & Trade Center	Seattle, WA
2010	"Dislocations in graphene" Invited Lecture, Symposium on Multiscale Dislocation Dynamics	UCSD, La Jolla, CA
2009	"Optimal-Transportation Meshfree Approximation Schemes for Fluid and Plastic Flows" Invited Lecture, Institut für Baustatik und Baudynamik	Universität Stuttgart,
2009	"Dislocation in graphene" Invited Lecture, Workshop on PDEs and Materials	Oberwolfach, Germany
2009	"Optimal-Transportation Meshfree Approximation Schemes for Fluid and Plastic Flows" Invited Lecture, COMPLAS X	Barcelona, Spain
2009	"Multiscale Modeling of High Energetic Materials under Impact Loads" Invited Lecture, USNCCM X	Columbus, OH
2009	"Can Complex Material Behavior be Predicted" Invited Lecture, Krell Institute 2009 Annual Conference, DoE NNSA Stockpile Stewardship Graduate Fellowship Program Meeting	Washington, DC
2009	"Multiscale Modeling of Energetic Materials" Invited Lecture, New Frontiers in the Mathematics of Solids Multiscale Models in Solid Mechanics	Oxford University, UK
2009	"Energy-stepping integrators in Lagrangian mechanics" Structured Integrators Workshop	Caltech, Pasadena, CA
2008	"Multiscale modeling of materials: Linking microstructure and macroscopic behavior" Invited Lecture, Seminarios Interuniversitarios de Mecanica y Materiales	Barcelona, Zaragoza, Seville, Spain
2008	"Minimum principles for characterizing the trajectories and microstructural evolution of dissipative systems" Invited Lecture, SES	Champagne, IL
2008	"Multiscale models of metal plasticity: Part I: Dislocation dynamics to crystal plasticity" Invited Lecture, MULTIMAT closing meeting	Bonn, Germany
2008	"Multiscale models of metal plasticity: Part II: Crystal plasticity to subgrain microstructures"	Bonn, Germany

	Invited Lecture, MULTIMAT closing meeting	
2008	"Nonconvex Plasticity and Microstructure" Rodney Hill Prize Plenary Lecture, 22nd International Congress of Theoretical and Applied Mechanics	Adelaide, Australia
2008	"Nonconvex Plasticity and Microstructure" Invited Lecture, 8th World Congress on Computational Mechanics	Venezia, Italy
2008	"Electronic-structure calculations at macroscopic scales" Opening Plenary Lecture, 8th World Congress on Computational Mechanics	Venezia, Italy
2008	"Quasi-Continuum Density Functional Theory" Invited Lecture, 8th World Congress on Computational Mechanics	Venezia, Italy
2008	"Minimum principles for characterizing the trajectories and microstructural evolution of dissipative systems" Invited Lecture, Geometric Analysis, Elasticity and PDEs	Edinburgh
2008	"Discrete Dislocation Dynamics" Invited Lecture, Symposium on Multiscale Dislocation Dynamics	UCSD, La Jolla, CA
2007	"Electronic-structure calculations at macroscopic scales" Lecture, Material Theories Workshop	Oberwolfach, Germany
2007	"Electronic-structure calculations at macroscopic scales" Plenary Lecture, Complas IX International Conference on Computational Plasticity, Fundamentals and Applications, International Center for Numerical Methods in Engineering (CIMNE)	Barcelona, Spain
2007	"Electronic-structure calculations at macroscopic scales" Plenary Lecture, BAMC 2007, 49th British Applied Mathematics Colloquium	University of Bristol, UK
2007	"Prediction and Multiscale Modeling of Corrosion and Wear", Plenary Lecture, 17th US Army Symposium on Solid Mechanics	Baltimore, MD
2007	"Energy-Dissipation Functionals in Fracture Mechanics", Lecture, Analysis and Numerics for Rate-Independent Processes Workshop	Oberwolfach, Germany
2006	"Diamonds: Finite-Element/Discrete Mechanics Schemes with Guaranteed Optimal Convergence", Plenary Lecture, International Conference on Multifield Problems	University of Stuttgart, Germany
2006	"Multiscale Modeling of Materials. Part I: Dislocation Structures to polycyrstals", Invited Lecture, Calculus of Variations and Partial Differential Equations Workshop, Centro di Ricerca Matematica Ennio de Giori, Scuola Normale Superiore	Pisa, Italy
2006	"Multiscale Modeling of Materials. Part II: Dislocation Structures to polycyrstals", Invited Lecture, Calculus of Variations and Partial Differential Equations Workshop, Centro di Ricerca Matematica Ennio de Giori, Scuola Normale Superiore	Pisa, Italy
2006	"Multiscale Modeling of Materials. Part III: Discrete to Continuum", Invited Lecture, Calculus of Variations and Partial Differential Equations Workshop, Centro di Ricerca Matematica Ennio de Giori, Scuola Normale Superiore	Pisa, Italy
2006	"Effect of Blast Loads on Reinforced Steel Plates & Shells", Invited Lecture, Materials & Structures for Advanced Ship Protection Workshop, Harbourtowne	Harbourtowne, St. Michaels, MD
2006	"Discrete Differential Calculus and Analysis for Incompressible Elasticity", Keynote Lecture, WCCM VII - 7th World Congress on Computational Mechanics	Los Angeles, California
2006	"Multiscale Modeling of Materials: A Challenge in Predictive Science", Invited Lecture, The Stanford S. and Beverly P. Penner Distinguished Lectures in the Aerospace & Mechanical Engineering Sciences	University of California, San Diego
2005	"Analysis and Computation of Microstructures in Finite Plasticity", Mini-Workshop, Organizer and Speaker	Oberwolfach, Germany
2005	"Mixed Continuum Atomistic Methods in Nanomechanics", Keynote Lecture, International Conference on Micromechanics and Microstructure Evolution: Modeling, Simulation and Experiments	Madrid, Spain
2005	"Multi-Scale Problems: Modelling Analysis and Applications", Invited Lecture, Bath Institute for Complex Systems	University of Bath
2005	"Multiscale Modeling of Materials: Linking Microstructure and Macroscopic Behavior", Keynote Lecture, COMPLAS 2005, VIII International Conference on Computational Plasticity	Barcelona, Spain
2005	"Multiscale Modeling of Materials: Linking Microstructure and Macroscopic Behavior", Semi-Plenary Lecture, USNCCM8 Conference	Austin, TX
2005	"Multiscale Modeling of Materials: Microstructure and Macroscopic Behavior", Seminar	University of Kaiserslautern, Germany
2005	"Linking microstructure and macroscopic behavior", Seminar, Politecnico di Milano, Dipartimento di Ingegneria Strutturale	Milano, Italy
2005	"Multiscale problems in crystal plasticity", Seminar, Politecnico di Milano, Dipartimento di Matematica	Milano, Italy
2005	"Subdivision Shells ", Keynote Lecture (Fehmi Cirak, Michael Ortiz), Fifth International Conference on Computation of Shell & Spatial Structures	Salzburg, Austria
2005	"Multiscale Models of Materials: Linking Microstructure and Macroscopic Behavior", P/T Colloquium	Los Alamos National Laboratory
2005	"Multiscale Models of Materials: Linking Microstructure and Macroscopic Behavior", Plenary Lecture, SIAM Conference on Computational Science & Engineering	Orlando, FL
2004	"A Three-Dimensional Multi-Phase field Model of Dislocation Dynamics and Plasticity in Crystals", Invited Lecture (M. Ortiz and M. P. Ariza), MRS Fall Conference	Boston, MA

2004	"Statistical Treatments of Deformation in Polycrytals", Keynote Lecture, Second International Conference on Multiscale Materials Modelling (MMM-II)	UCLA
2004	"Continuum Models of Dislocation Dynamics and Dislocation Structures", Invited Lecture, Gordon Research Conference on Physical Metallurgy	The Holderness School, Plymouth, NH
2004	"An Overview of Variational Integrators", by A. Lew, M. West, J. Marsden and M. Ortiz, Thomas J. R. Hughes' 60th Birthday Conference	Rice University
2004	"Multiscale modeling of the iron bcc to hcp martensitic phase transformation", by Kyle J. Caspersen, Emily Carter, Adrian Lew and Michael Ortiz, American Physical Society Spring Meeting, Ohio University	Athens, OH
2004	"Capturing the Singular Sets of Solids", Invited Talk, Joint Mechanics & Computaton - Materials Science and Engineering Colloquium, Stanford University	Stanford
2004	"Dislocation Patterns and the Deformation of Metals", by M. Koslowski, A. Cuitino, M. Ortiz, R. LeSar, R. Thomson, presentated at the 2004 TMS Annual Meeting and Exhibition	Charlotte, North Carolina
2004	"The CSEM Multiprocessor Computing Facility", by Jarek Knap, Group meeting presentation, Caltech	Pasadena, CA
2004	"The Case for a Space Science and Technology Initiative", Presentation to the E&AS Visiting Committee, Caltech	Pasadena, CA
2003	"Shells and Membranes: Grace under Pressure", Presentation at the GALCIT 75th Anniversary Celebration, Caltech	Pasadena, CA
2003	"Mixed Continuum/Atomistic Models: The Quasicontinuum Method", Invited Lecture, AHPCRC Workshop on the Mechanical Behavior of Materials from Atoms to Structures	UMN
2003	"State and Future Perspectives in Computational Mechanics of Materials and Structures", Invited Speaker, Commas Graduation Ceremony	University of Stuttgart
2003	MURI on Engineered Microstructural Complexity in Ferroelectric Devices, Program review, Caltech	Pasadena, CA
2003	"Variational Methods in Dislocation Dynamics", Workshop on PDEs and Materials	Oberwolfach, Germany
2003	"Variational Problems in Mechanics and the Link between Microstructure and Macroscopic Behavior ", Fifth International Conference on Industrial and Applied Mathematics	Sydney, Australia
2003	"The Mechanics of Viral DNA Packaging", Physical Chemistry Seminar, UCLA	Los Angeles, CA
2003	"The Mechanics of Viral DNA Packaging", Solid Mechanics Seminar, Caltech	Pasadena, CA
2003	"Mixed Continuum/Atomistic Model: The Quasicontinuum Method", Plenary Lecture, 7th Computational Plasticity Conference	Barcelona, Spain
2002	"Discrete Dynamics and Variational Integrators", Plenary Lecture, 5th World Congress on Computational Mechanics	Vienna, Austria
2002	"Non-Convex Plasticity and Dislocation Structures", Plenary Lecture, 2002 GAMM Annual Meeting	Augsburg, Germany
2001	"An Exactly Solvable Phase-Field Model of Dislocation Dynamics" Workshop on Multiscale Modeling	Bodega Bay, California
2001	"Delamination of Compressed Thin Films" Workshop on Material Interfaces and Geometrically-Based Motions IPAM/UCLA	Los Angeles, California
2000	"Microstructure Development and Evolution in Plasticity" Vienna Summer School on Microstructures	Vienna, Austria
2000	"Subdivision Elements for Thin-Film Analysis" ECCOMAS 2000	Barcelona, Spain
2000	"Cohesive Models of Fracture" Solid Mechanics at the Turn of the Millennium Providence	Rhode Island
2000	"The Effect of Elastic Stresses and Crystallographic Slip on Island Growth in Thin Films" Invited Lecture, 3rd SIAM Conference on Mathematical Aspect of Materials Science	Philadelphia, PA

PUBLICATIONS AND CITATIONS (as of December 2018)

Career total of 344 articles indexed in the Web of Science Core Collection, 15, 350 citations (excluding self-citations), h-index 64.
Refereed Journal Publications: http://www.ortiz.caltech.edu/publications/index.html

BIBLIOGRAPHY (papers listed in ISI Web of Science)

1. Ortiz M, Popov EP. Plain Concrete as a Composite Material. Mech Mater. 1982;1:139-50.
2. Ortiz M, Popov EP. A Statistical-Theory of Polycrystalline Plasticity. P Roy Soc Lond a Mat. 1982;379(1777):439-58.
3. Ortiz M, Popov EP. A Physical Model for the Inelasticity of Concrete. P Roy Soc Lond a Mat. 1982;383(1784):101-25.
4. Ortiz M, Popov EP. Distortional Hardening Rules for Metal Plasticity. J Eng Mech-Asce. 1983;109(4):1042-57.
5. Pinsky PM, Ortiz M, Taylor RL. Operator Split Methods in the Numerical-Solution of the Finite Deformation Elastoplastic Dynamic Problem. Comput Struct. 1983;17(3):345-59.
6. Ortiz M. A Variational Formulation for Convection-Diffusion Problems. Int J Eng Sci. 1985;23(7):717-31.
7. Ortiz M. A Constitutive Theory for the Inelastic Behavior of Concrete. Mech Mater. 1985;4(1):67-93.

8. Ortiz M, Popov EP. Accuracy and Stability of Integration Algorithms for Elastoplastic Constitutive Relations. Int J Numer Meth Eng. 1985;21(9):1561-76.
9. Simo JC, Ortiz M. A Unified Approach to Finite Deformation Elastoplastic Analysis Based on the Use of Hyperelastic Constitutive-Equations. Comput Method Appl M. 1985;49(2):221-45.
10. Ortiz M. A Note on Energy-Conservation and Stability of Nonlinear Time-Stepping Algorithms. Comput Struct. 1986;24(1):167-8.
11. Ortiz M, Nouromid B. Unconditionally Stable Concurrent Procedures for Transient Finite-Element Analysis. Comput Method Appl M. 1986;58(2):151-74.
12. Ortiz M, Simo JC. An Analysis of a New Class of Integration Algorithms for Elastoplastic Constitutive Relations. Int J Numer Meth Eng. 1986;23(3):353-66.
13. Molinari A, Ortiz M. Global Viscoelastic Behavior of Heterogeneous Thermoelastic Materials. Int J Solids Struct. 1987; 23(9):1285-300.
14. Ortiz M. An Analytical Study of the Localized Failure Modes of Concrete. Mech Mater. 1987;6(2):159-74.
15. Ortiz M. A Continuum Theory of Crack Shielding in Ceramics. J Appl Mech-T Asme. 1987;54(1):54-8.
16. Ortiz M. A Method of Homogenization of Elastic Media. Int J Eng Sci. 1987;25(7):923-34.
17. Ortiz M, Leroy Y, Needleman A. A Finite-Element Method for Localized Failure Analysis. Comput Method Appl M. 1987;61(2): 189-214.
18. Ortiz M. Microcrack Coalescence and Macroscopic Crack-Growth Initiation in Brittle Solids. Int J Solids Struct. 1988;24(3):231-50.
19. Ortiz M, Molinari A. Microstructural Thermal-Stresses in Ceramic Materials. J Mech Phys Solids. 1988;36(4):385-400.
20. Ortiz M, Morris GR. C0 Finite-Element Discretization of Kirchhoffs Equations of Thin Plate Bending. Int J Numer Meth Eng. 1988;26(7):1551-66.
21. Ortiz M, Nouromid B, Sotelino ED. Accuracy of a Class of Concurrent Algorithms for Transient Finite-Element Analysis. Int J Numer Meth Eng. 1988;26(2):379-91.
22. Leroy Y, Ortiz M. Localization Analysis under Dynamic Loading. Inst Phys Conf Ser. 1989(102):257-65.
23. Leroy Y, Ortiz M. Finite-Element Analysis of Strain Localization in Frictional Materials. Int J Numer Anal Met. 1989;13(1):53-74.
24. Nacar A, Needleman A, Ortiz M. A Finite-Element Method for Analyzing Localization in Rate Dependent Solids at Finite Strains. Comput Method Appl M. 1989;73(3):235-58.
25. Ortiz M. Extraction of Constitutive Data from Specimens Undergoing Strain Localization. J Eng Mech-Asce. 1989;115(8):1748-60.
26. Ortiz M, Giannakopoulos AE. Maximal Crack Tip Shielding by Microcracking. J Appl Mech-T Asme. 1989;56(2):279-83.
27. Ortiz M, Martin JB. Symmetry-Preserving Return Mapping Algorithms and Incrementally Extremal Paths - a Unification of Concepts. Int J Numer Meth Eng. 1989;28(8):1839-53.
28. Ortiz M, Sotelino ED, Nouromid B. Efficiency of Group Implicit Concurrent Algorithms for Transient Finite-Element Analysis. Int J Numer Meth Eng. 1989;28(12):2761-76.
29. Bower AF, Ortiz M. Solution of 3-Dimensional Crack Problems by a Finite Perturbation Method. J Mech Phys Solids. 1990; 38(4):443-80.
30. Leroy Y, Ortiz M. Finite-Element Analysis of Transient Strain Localization Phenomena in Frictional Solids. Int J Numer Anal Met. 1990; 14(2):93-124.
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