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APPOINTMENTS

New Jersey Institute of Technology, Professor	9/09 - present
Director of the Center for Applied Mathematics and Statistics	7/16 - present
Director of Graduate Programs of the Department of Mathematical Sciences	7/07 - 6/09 7/15 - 6/16
New Jersey Institute of Technology, Associate Professor	9/02-8/09
New Jersey Institute of Technology, Assistant Professor	7/99-8/02
Duke University, Research Associate	9/97-7/99
Courant Institute of Mathematical Sciences, *New York University*, Research Associate	9/95-9/97

SHORT-TERM AND NONACADEMIC APPOINTMENTS

Department of Physics, College of Engineering, *University of Buenos Aires*	02/13-06/13
Department of Applied Physics and Applied Mathematics, *Columbia University*	09/12-01/13
Institute of Physics, UNCPBA, Tandil, Argentina, Fulbright Visiting Professor	02/06-05/06
The Courant Institute, New York University	09/05-01/06
Institute Rudjer Boskovic, Zagreb, Croatia, Research Assistant Scientist	03/89-09/89
KFA, Jülich, Germany, Visiting Scientist	09/88-11/88

EDUCATION

The City College of The City University of New York
Ph. D. in Physics, 6/95 Thesis "Theory of Sonoluminescence" (advisor: Joel Gersten)

University of Zagreb, Croatia
B. S. in Physics 6/89 (advisor Klaus Goeke, KFA, Jülich, Germany)

RESEARCH INTERESTS

Modeling: 1. Fluid Mechanics: thin films; coating flows; liquid-solid interaction; micro and nano scale fluidics; multiphase problems including phase change; colloidal systems; porous media flow. 2. Granular Matter: dense granular systems; effects of microstructure on macro properties; networks in material systems; topological methods.
Computing: Numerical methods for nonlinear ordinary and partial differential equations; discrete element and Monte-Carlo simulations.

HONORS

- Recipient of Leloir Award for International Cooperation in Science, Technology and Innovation by Argentine Ministry of Science and Technology, 2017.
- Fellow of the American Physical Society, 2017.
- Excellence in Research Award by the College of Sciences and Liberal Arts, NJIT, 2013.
- Fulbright Scholar, 2005.
- Entries in the Citation Index: 1900+ (excluding self citations); H-index: 25 (as of December 2018) (source: Scopus).

- 'KITP Scholar', University of California, Santa Barbara, CA (2005 - 2007).
- Journal cover pages: Scilight: *Phys. Fluids* **30**, no. 1 2018. *Phys. Rev. Lett.* **114**, no. 14. 2015; *E. Phys. J. Spec. Topics* 2015; *J. Fluid. Mech.* **718**, 2013; *Nanoscale* **4**, no. 23. 2012.

PAST AND CURRENT PhD STUDENTS AND POST-DOCTORAL ASSOCIATES

STUDENTS:

1. Binan Gu, thesis project "Stochastic Modeling of Flow through Complex Geometries" (co-advised with Linda Cummings).
2. Yixuan Sun, thesis project "Modeling and Optimizing Porous Media Flow with Applications to Filtering Process" (co-advised with Linda Cummings).
3. Ryan Allaire, thesis project "Fluid Film Instabilities on Thermally Conductive Substrates" (co-advised with Linda Cummings).
4. Chao Cheng, thesis project "Intermittent Dynamics of Dense Particulate Matter".
5. Ivana Seric, thesis title "Direct Computations for Marangoni Driven Flows Using a Volume of Fluid Method", graduated August 2017, (co-advised with Shahriar Afkhami); recipient of the best PhD student award by the College for Sciences and Liberal Arts, May 2015; first position after graduation: Data Modeling for Philadelphia 76ers.
6. Valeria Barra, thesis title "Numerical simulations of thin viscoelastic films", graduated May 2018; (co-advised with Shahriar Afkhami); first position after graduation: postdoctoral associate, U. Colorado, Boulder, CO.
7. Michael Lam, thesis title "Instabilities in nematic liquid crystal films and droplets"; co-advised with Linda Cummings; first position after graduation: Coastal & Hydraulic Laboratory, US Army Corps of Engineers, Vicksburg, MS.
8. Nanyi Dong, thesis title "Instabilities of Liquid Metal Films on Nanoscale", graduated May 2017.
9. Ensela Mema, thesis title "Mathematical models for polymer-nematic interactions", graduated December 2016; (co-advised with Linda Cummings); first position after graduation: West Point Academy, West Point NY.
10. Lenka Kovalcinova, thesis title "Numerical simulation of dense granular systems with and without cohesive effects", graduated August 2016; first position after graduation: Postdoctoral associate, NJIT, Newark, NJ.
11. Kyle Mahady, thesis title "Methods for the direct simulation of nanoscale film breakup and contact angles", graduated May 2015; (co-advised with Shahriar Afkhami); recipient of the best PhD student award by the College for Sciences and Liberal Arts, May 2014; first position after graduation: Postdoctoral associate, U. Tennessee, Knoxville, TN.
12. Chenjing Cai, thesis title 'Mathematical Models for Bistable Nematic Liquid Crystal Displays', graduated May 2013 (co-advised with Linda Cummings); first position after graduation: HSBC Bank.
13. Te-sheng Lin, thesis title "Instabilities in Newtonian Films and Nematic Liquid Crystal Droplets", graduated May 2012; first position after graduation: Postdoctoral Associate at Dept. of Mathematics, Loughborough University, UK.
14. Xiaoni Fang, thesis title "Energy Propagation in Jammed Granular Matter", graduated August 2011, first position after graduation: Procysive Corporation, Rayleigh, NC.
15. Nebojsa Murisic, thesis title "Instabilities of Evaporative Drops and Films", graduated May 2008; first position after graduation: Research Professor at Dept. of Mathematics, UCLA.
16. Tetyana Segin, thesis title "Nonlinear Long-wave Interfacial Stability of Two-layer Gas-liquid Flow", graduated May 2004; first position after graduation: Postdoctoral Associate at Dept. of Chem. Eng., U. Alberta.

POST-DOCTORAL ASSOCIATES:

1. Lenka Kovalcinova, project title: "Quantifying Complex Spatiotemporal Systems", (September 2016 - August 2018); consequent position: Google, Inc.
2. William Batson, project title: "Complex temporal dynamics of heated fluid films", (co-advised with Linda Cummings and David Shirokoff) (September 2016 - August 2018); consequent position: U. Colorado.
3. Arnaud Goullet, postdoctoral associate, project title: "Force field structure of dense granular matter", (August 2010 - August 2012); consequent position: Rutgers University, Piscataway, NJ.
4. Michel Tsukahara, postdoctoral associate, project title: "Topological properties of force fields in jammed granular systems" (January 2010 - January 2011); consequent position: Dept. of Mathematics, U. Laussane, Switzerland.
5. Yiguang Yu, postdoctoral associate, project tite: "Applications of topological techniques to dense granular matter" (September 2008 - September 2009), consequent position: Dept. of Chem. Eng., MIT, Cambridge, MA.
6. Svetlana Tlupova, postdoctoral associate, project title: "Modeling of two phase flow using combined Stokes-Darcy model", (September 2007 - August 2009) (co-advised with W. Choi, M. Siegel, D. Papageorgiou), consequent position: Dept. of Mathematics, U. Michigan, Ann Arbor, MI.
7. Oleh Baran, postdoctoral associate, project title "Statistical properties of dense granular materials", (January 2003 - August 2004), consequent position: Exxon, NJ.

TEACHING ACTIVITIES

1. Director of Graduate Studies at the Department of Mathematical Sciences (2007 - 2009, 2015 - 2016).
2. Supervised visiting PhD students, Svetozar Nesic from University Carlos III, Madrid, Spain (2013) and Francesc Font Martinez from Polytechnic University, Barcelona, Spain (2014) during their 3 months long study visits.
3. Supervising Undergraduate Capstone Laboratory http://cfsm.njit.edu/capstone; co-authored five research papers with NJIT Undergraduate students.
4. Courses taught at NJIT: (i) Undergraduate Courses: Calculus I - III, Linear Algebra, Partial Differential Equations, Numerical Methods, Numerical Mathematics Laboratory, Topics in Scientific Computing, Advanced Partial Differential Equations, Methods of Applied Mathematics I and II; (ii) Graduate Courses: Nonlinear Partial Differential Equations, Applied Mathematics I, II and III, Teaching in Mathematics.
5. New Courses Developed: Multiple moduli for the Methods in Applied Mathematics; Topics in Scientific Computing; Numerical Mathematics Laboratory.
6. Supervised summer research projects (REU's) in 2003, 2005, 2011, 2016, 2017, 2018.
7. Speaker at the 2011 Interdisciplinary Summer School: Granular Flows: From Simulations to Astrophysical Applications. College Park, MD, June 2011.

CONSULTING ACTIVITIES

- Consulting for KLA-Tencor, San Jose, CA, 2006-2008.

OTHER SELECTED ACTIVITIES

1. *Conference Organizing:*
   (a) Chair of the Organizing Committee: *Frontiers in Applied and Computational Mathematics*, June 2017.

(b) Chair of the Organizing Committee: *Pan American Advanced Study Institute (PASI) on Frontiers in Particulate Media: From Fundamentals to Applications*, August 2014, attended by 75 lecturers, senior and postdoctoral researchers and graduate students from the institutions in more than 10 countries (La Plata, Argentina). Supported by: PASI NSF grant (PI), Grants from National Council for Scientific and Technical Research (CONICET), Argentina; AGENCIA (Argentina), YPF Foundation, Latin American Physics Center (CLAF), Brazil, and SIAM (PI on the NSF grant (with Robert Behringer, Duke University)).

(c) Chair of the Organizing Committee: *Pan American Study Institute (PASI) on Interfacial Fluid Dynamics,* August 2007, attended by 80 lecturers, senior and postdoctoral researchers and graduate students originating from more than 10 countries. Supported by: the PASI NSF grant (PI), Grants from the International Center for Theoretical Physics (ICTP), Trieste, Italy; the National Council for Scientific and Technical Research (CONICET), Argentina; the Latin American Physics Center (CLAF), Brazil. (PI on the NSF grant (with Bud Homsy, UCSB).

(d) Organizer: Workshop on Granular Matter across Scales, Lorentz Institute, Leiden, The Netherlands, March 2019; Workshop on Physics of Dense Granular Matter at ESMC 2018, Bologna, Italy, July 2018; Invited Session "Mesoscale Structures in Particulate-based Systems" at APS March Meeting, New Orleans, March 2017; Workshop on Statics and Dynamics of Dense Granular Matter at ESMC 2015, Madrid, Spain, July 2015; Mini-symposium on Advances in Modeling and Computation of Thin Liquid Films in Materials Science, SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, June 2013; Workshop on Predicting Response of Dense Granular Matter at ESMC 2012, Graz, Austria, July 2012; Workshop on Fluctuations and Response in Granular Materials, Center for Physics, Aspen, CO, 2011; Special Session on Mathematical and Computational Advances in Interfacial Fluid Dynamics at 1070th AMS meeting Worcester, MA, 2011; Symposium on Force Chains and Jamming at ESMC 2009 (9th European Solid Mechanics Conference), Lisbon, Portugal; Symposium on Granular Matter at ICIAM 2007 (6th International Congress on Industrial and Applied Mathematics), Zürich, Switzerland, 2007.

2. *Conference activities:*

(a) *Discussion leader* at the Gordon conferences: "Granular matter", Easton, MA, July 2018; "Nonlinear Science", Mount Holyoke, MA, June 2009; "Gravitational Effects in Physico-chemical Systems", New London, NH, July 2001.

(b) *Invited Session Chair* at: European Solid Mechanics Conferences (ESMCs), Bologna, Italy 2018; Madrid, Spain 2015; Graz, Austria, 2012; Lisbon, Portugal 2009; 555 Heraeus seminar on Wetting of Structures with complex geometries, Bad Honnef, Germany, May 2014; IMA Worksop on Algebraic Topology in Dynamics, Differential Equations, and Experimental Data, Minneapolis, MN, February 2014; FACM '05, '07, '08, '10, '12, '15 conferences at NJIT, Newark, NJ; International Conference on Applied Mathematics, Hong Kong, China, June 2010, Eurotherm Seminar 84, Namur, Belgium, May 2009, International Congress of Mathematicians (ICM), Madrid, Spain, September 2006; APS March Meeting San Antonio 2015, APS Division of Fluid Dynamics meetings in Atlanta 2018, Denver 2017, Portland 2016, Boston 2015, Pittsburgh 2013, Baltimore 2011, Long Beach 2010, San Antonio 2008, Chicago 2005 and Dallas 2002; SIAM Annual Meeting, Atlanta, GA, May 1999.

3. *Grants supporting international research collaborations:*

(a) Force networks in granular packings: persistent homology by CONICET, Argentina (with L. Pugnaloni) (2017).

(b) Stability, breakup, and self-assembly of thin films on nanoscale by APS (with J. Diez)

(2012).

(c) Grant from the Fulbright Foundation to perform teaching and research in Argentina during the Spring semester of 2006; developed a graduate course "Nonlinear Partial Differential Equations" taught at Department of Physics, Universitad del Centro de la Provincia de Buenos Aires, Tandil, Argentina (Spring 2006).

4. *Education related grants:*

(a) Fellowship for the advising student, Ryan Allaire from the DOE Office of Science Graduate Student Research Program (SCGSR) (2018).

(b) Grant from NSF Division of Undergraduate Education CCLI Adaptation and Implementation Program "Equipment and Modules for Capstone Course in Applied Mathematics" (2005) (with Daniel Goldman, Michael Booty, Bruce Bukiet and Michael Siegel).

(c) Grant from the Council for International Exchange of Scholars/Fulbright Foundation to develop collaborative track of PhD program in Mathematical Sciences with University National del Centro de la Provincias de Buenos Aires, Argentina (2004) (with Javier Diez).

SELECTED SERVICE ACTIVITIES AT NJIT

- Director of the Center for Applied Mathematics and Statistics (2016 - present).
- Member of the Faculty Council of NJIT (2009 - 2012, 2013-2014).
- Director of Graduate Studies of the Department of Mathematical Sciences (2007 - 2009, 2015 - 2016).
- Graduate advisor for the PhD program in Applied Mathematics (2007 - 2009), MS programs in Applied Mathematics and in Computational Biology (2007 - 2008).
- Member of the Graduate Council of NJIT (2007 - 2009).
- Chair of the Committee for Qualifying Exams (2006, 2010-2012).
- Organizing Committee of the Conference Frontiers in Applied and Computational Mathematics: Chair (2017, 2019); Member (2006, 2011, 2012, 2015, 2018).

PAST AND CURRENT SUPPORT

PI	ARO	Stick-slip Dynamics and Failure in Granular Materials	10/18 - 09/21
Co-PI	NSF	Liquid Crystal films across scales: Dewetting & Dielectrowetting	09/18 - 08/21
Co-PI	NSF	Recent Advances on Numerical Wave propagation	08/18 - 07/19
Co-PI	NSF	ISS: GOALI: Nonequilibrium processing of Particle Suspensions with Thermal and Electric Field Gradients	07/18 - 06/21
PI	NASA	Structure Evolution during Phase Separation in Colloids under Microgravity	08/16 - 07/18
Co-PI	DARPA	Quantifying Complex Spatiotemporal Systems	08/16 - 07/18
Co-PI	NSF	GOALI: Predicting performance and fouling of membrane filters	09/16 - 08/19

PI	NSF	Collaborative Research: Computations, Modeling and Experiments of Self and Directed Assembly for Nanoscale Liquid Metal Systems	07/16 - 06/19
Co-PI	NSF	Collaborative Research: Computational and Data-Enabled Science and Engineering: Characterizing Dynamics of Particle-based Systems	08/15 - 07/18
PI	NSF	Pan-American Advanced Studies Institute (PASI) on Frontiers in Particulate Media: From Fundamentals to Applications	01/13 - 12/14
I	NSF	CREATIV: Nonlinear Data Reduction applied to Dense Granular Media	10/12 - 09/15
PI	NSF	Collaborative Research: Experimental and Computational Study of the Instabilities, Transport, and Self Assembly of Nanoscale Metalic Thin Films and Nanostructures	09/12 - 08/15
Co-PI	NSF	Modeling and analysis of nematic films: Flow substrate interactions	09/12 - 08/15
Co-PI	NSF	Support for the Symposium on Methods to Predict the Structural and Mechanical Properties of Dense Granular Media	07/12 - 07/13
PI	DTRA/DOD	Microstructure, Fluidization, and Control of Penetrator Trajectories in Granular Media	04/10 - 03/15
I	NSF/IFPRI	Collaboratory Research in Dense Particulate Flow	06/10 - 05/11
Co-PI	NSF	Modeling and Analysis of Nematic Liquid Crystals in Thin Geometries: Bistable Configurations and Free Surface Instabilities	09/09 - 08/13
PI	NSF	CDI-type II: Collaborative Research: Computational Homology, Jamming, and Force Chains in Dense Granular Flows	10/08 - 09/12
PI	NSF	Bridging the Spatial and Temporal Scales in Dense Granular Systems	08/06 - 07/09
PI	NSF	Pan-American Advanced Study Institute (PASI) on Interfacial Fluid Dynamics	09/06 - 08/08
PI	ICTP (Trieste, Italy)	Pan-American Study Institute (PASI) on Interfacial Fluid Dynamics	08/07 - 08/07

PI	Fulbright Foundation	Dynamics of non-Newtonian Liquid Films involving Contact Lines	09/05–08/06
PI	NSF	Equipment and Modules for a Capstone Course in Applied Mathematics	09/05 - 08/08
PI	NASA	Gravity and Granular Materials: Flight Project	04/04 -11/07
Co-PI	Fulbright Foundation	Establishment of Joint PhD Programs	07/04 - 06/06
I	NSF	Major Research Instrumentation	08/04 - 07/06
Co-PI	NASA	Gravity and Granular Materials	03/00 - 11/03
PI	NSF	Instabilities in the Flow of Thin Liquid Films	02/02 - 01/05
Co-PI	NSF	Scientific Computing Research Environments for the Mathematical Sciences (SCREMS)	09/01 - 08/03

PUBLISHED JOURNAL ARTICLES AND REVIEWS

1. Barra, V., Afkhami, S., Kondic, L., Thin viscoelastic dewetting films of Jeffreys type subject to gravity and substrate interactions, *Eur. Phys. J. E* **42**, 12 (2019).
2. Lam, M., Cummings, L., Kondic, L., Computing dynamics of thin films via large scale GPU-based simulations, J. Comput. Phys. 100001 (2018).
3. Cuellar, I., Ravazzoli, P. D., Diez, J. A., Gonzalez, A. G., Roberts, N., Fowlkes, J., Rack, P., and Kondic, L., Self-assembly of a drop pattern from a two-dimensional grid of nanometric metallic filaments, *Phys. Rev. E* **98**, 043101 (2018).
4. Kovalcinova, L., Karmakar, S., Schaber, M., Schuhmacher, A.-L., Scheel, M., DiMichiel, M., Brinkmann, M., Seemann, R., and Kondic, L., Energy dissipation in sheared wet granular assemblies, *Phys. Rev. E* **98**, 032905 (2018).
5. Dijksman, J., Kovalcinova, L., Ren, J., Behringer, R., Kramar, M., Mischaikow, K., Kondic, L., Characterizing granular networks using topological metrics, *Phys. Rev. E* **97**, 042903 (2018).
6. Mema, E., Kondic, L., Cummings, L., Director gliding in a nematic liquid crystal layer: Quantitative comparison with experiments, *Phys. Rev. E* **97**, 032704 (2018).
7. Lam, M., Cummings, L., Kondic, L., Stability of thin fluid films characterised by a complex form of effective disjoining pressure, *J. Fluid. Mech.* **841**, 925 (2018), featured in *Advances in Engineering*.
8. Seric, I., Afkhami, S., Kondic, L., Influence of thermal effects on stability of nanoscale films and filaments on thermally conductive substrates, *Phys. Fluids* **30**, 012109 (2018).
9. Seric, I., Afkhami, S., Kondic, L., Direct numerical simulation of variable surface tension flows using a Volume-of-Fluid method, *J. Comput. Phys.* **352**, 615 (2018).
10. Takahashi, T., Clark, A. H., Majmudar, T., Kondic, L., Granular response to impact: Topology of the force networks, *Phys. Rev. E* **97**, 012906 (2018).
11. Hartnett, C. A., Seric, I., Mahady, K., Kondic, L., Afkhami, S., Fowlkes, J. D., Rack, P., Exploiting the Marangoni Effect To Initiate Instabilities and Direct the Assembly of Liquid Metal Filaments, *Langmuir* **33**, 8123 (2017).
12. Font, F., Afkhami, S., Kondic, L., Substrate melting during laser heating of nanoscale metal films, *Int. J. Heat Mass Transfer* **113**, 237 (2017).
13. Mema, E., Kondic, L., Cummings, L., Effects of flexoelectricity and weak anchoring on a Freedericksz transition cell, *Phys. Rev. E* **95**, 012701 (2017).
14. Barra, V., Afkhami, S., Kondic, L., Interfacial Dynamics of Thin Viscoelastic Films and

Drops, *J. Non-Newtonian Fluid. Mech.* **237**, 26 (2016).

15. Dong, N., Kondic, L., Instability of nanometric fluid films on a thermally conductive substrate, *Phys. Rev. Fluids* **1**, 063901 (2016).
16. Kondic, L., Kramar, M., Pugnaloni, L.A., Carlevaro, M.C., Mischaikow, K., Structure of force networks in tapped particulate systems of disks and pentagons. II. Persistence analysis, *Phys. Rev. E* **93**, 062903 (2016).
17. Pugnaloni, L.A., Carlevaro, M.C., Kramar, M., Mischaikow, K., Kondic, L., Structure of force networks in tapped particulate systems of disks and pentagons. I. Clusters and loops, *Phys. Rev. E* **93**, 062902 (2016).
18. Mahady, K, Afkhami, S., Kondic, L., A numerical approach for the direct computation of flows including fluid-solid interaction: Modeling contact angle, film rupture, and dewetting, *Phys. Fluids* **28**, 062002 (2016).
19. Clark, A., Kondic, L., Behringer, R.P., Steady flow dynamics during granular impact, *Phys. Rev. E* **93**, 050901(R) (2016)
20. Kovalcinova, L., Goulet, A., Kondic, L., Scaling properties of force networks for compressed particulate systems; *Phys. Rev. E* **93**, 042903 (2016).
21. Mema, E., Kondic, L., Cummings, L., Substrate induced gliding in a nematic liquid crystal layer, *Phys. Rev. E* **92**, 062513 (2015).
22. Nesic, S., Cuerno, R., Moro, E., Kondic, L., Fully nonlinear dynamics of stochastic thin film dewetting, *Phys Rev. E Rapid Commun.* **92**, 061002(R) (2015).
23. Hartnett, C., Mahady, K., Fowlkes, J. D., Afkhami, S., Kondic, L., Rack, P., Instability of nano and microscale liquid metal filaments: Transition from single droplet collapse to multi-droplet breakup, *Langmuir* **31**, 13609 (2015).
24. Kovalcinova, L., Goullet, A., Kondic, L., Percolation and jamming transitions in particulate systems with and without cohesion, *Phys. Rev. E* **92**, 032204 (2015).
25. Mahady, K., Afkhami, S., Kondic, L., On the influence of initial geometry on the evolution of fluid filaments, *Phys. Fluids* **27**, 092104 (2015).
26. Mort, P., Michaels, J. N., Behringer, R. P., Campbell, C. S., Kondic, L., Kheiripour Langroudi, M., Shattuck, M., Tang, J., Tardos, G. I., Wassgren, C., Dense granular flow - A collaborative study, *Powder Technology*, **284**, 571 (2015).
27. Anderson, T. Mema, E., Kondic, L., Cummings, L., Transitions in Poiseuille flow of nematic liquid crystal, *Int. J. Nonlin. Mech.* **75**, 15 (2015).
28. Clark, A., Petersen, A., Kondic, L., Behringer, R.P., Nonlinear Force Propagation During Granular Impact, *Phys. Rev. Lett.* **114**, 144502 (2015); featured in *Scientific American* (2015) and *Discovery Channel* (2015).
29. Mahady, K., Afkhami, S., Kondic, L., A volume of fluid method for simulating fluid/fluid interfaces in contact with solid boundaries, *J. Comput. Phys.* **294**, 243 (2015).
30. Lam, M., Te-Sheng, L., Cummings, L., Kondic, L., Asymptotic model for three-dimensional coating flow of nematic liquid crystal on an inclined substrate, *Euro. J. Appl. Math.* **26**, 647 (2015).
31. Kondic, L., Dong, N., Wu, Y., Fowlkes, J., Rack, P., Instabilities of nanoscale patterned metal films, *E. Phys. J. Spec. Topics* **224**, 369 (2015).
32. Nesic, S., Cuerno, R., Moro, E., Kondic, L., Dynamics of thin fluid films controlled by thermal fluctuations, *E. Phys. J. Spec. Topics* **224**, 379 (2015).
33. Hein, M., Afkhami, S., Seemann, R., Kondic, L., Capillary focusing close to a topographic step: Shape and instability of confined liquid filaments, *Microfluidics and Nanofluidics*, **18**, 911 (2015).
34. Afkhami, S., Kondic, L., On the Dewetting of Liquefied Metal Nanostructures, *J. Eng. Math.* **94**, 5 (2015).
35. Lam, M., Lin, T-S., Cummings, L., Kondic, L., Modeling flow of nematic liquid crystal down an incline, *J. Eng. Math.* **94**, 97 (2015).
36. Seric, I., Afkhami, S., Kondic, L., Long-wave approximation for a ferrofluid film under an

external magnetic field, *J. Fluid. Mech. Rapids* **755**, R1 (2014).

37. Kramar, M., Goullet, A., Kondic, L., Mischaikow, K., Quantifying force networks in particulate systems, *Physica D* **283**, 37 (2014).
38. Cummings, L., Mema, E., Cai, C., Kondic, L., Electric-field variations within a nematic-liquid-crystal layer, *Phys. Rev. E* **90**, 012503 (2014).
39. Wu, Y., Dong, N., Fu, S., Fowlkes, J., Kondic, L., Vincenti, M., de Ceglia, D., Rack, P., Directed Liquid Phase Assembly of Highly Ordered Metallic Nanoparticle Arrays, ACS Applied Materials & Interfaces **6**, 5836 (2014).
40. Fowlkes, J., Roberts, N., Wu, Y., Diez, J., Gonzalez, A., Hartnett, C., Mahady, K., Afkhami, S., Kondic, L., Rack, P., Hierarchical nanoparticle ensembles synthesized by liquid phase directed self-assembly, *Nano Lett.* **14**, 774 (2014).
41. Kondic, L., Simulations of Two Dimensional Hopper Flow, *Granular Matter* **16**, 235 (2014).
42. Kramar, M., Goullet, A., Kondic, L., Mischaikow, K., Evolution of force networks in dense particulate media, *Phys. Rev. E* **90**, 052203 (2014).
43. Mahady, K, Afkhami, S., Diez, J., Kondic, L., Comparison of Navier-Stokes simulations with long-wave theory: Study of wetting and dewetting, *Phys. Fluids* **25**, 112103 (2013).
44. Afkhami, S., Kondic, L., Numerical simulation of ejected molten metal-nanoparticles liquefied by laser irradiation: Interplay of geometry and dewetting, *Phys. Rev. Lett.* **111**, 034501 (2013).
45. Cummings, L., Cai, C., Kondic, L., Bifurcation properties of nematic liquid crystals exposed to an electric field: switchability, bistability and multistability, *Phys. Rev. E* **88**, 012509 (2013).
46. Lin, T., Cummings, L., Archer, A., Kondic, L., Thiele, U., Note on the hydrodynamic description of thin nematic films: strong anchoring model, *Phys. Fluids* **25**, 082102 (2013).
47. Gonzalez, A., Diez, J., Wu, Y., Fowlkes, J., Rack, P., Kondic, L., Instability of liquid Cu films on a SiO_2 substrate, *Langmuir* **29**, 9378 (2013).
48. Lin, T., Kondic, L., Thiele, U., Cummings, L., Spreading dynamics of liquid crystals in three spatial dimensions, *J. Fluid Mech.* **729**, 214 (2013).
49. Kramar, M., Goullet, A., Kondic, L., Mischaikow, K., Persistence of force networks in compressed granular media, *Phys. Rev. E* **87**, 042207 (2013).
50. Roberts, N. Fowlkes, J. Mahady, K. Afkhami, S.; Kondic, L. Rack, P., Directed assembly of one- and two-dimensional nanoparticle arrays from pulsed laser induced dewetting of square waveforms, *ACS Applied Materials & Interfaces* **5**, 4450 (2013).
51. Gonzalez, A.G., Diez, J., Kondic, L., Stability of a liquid ring on a substrate, *J. Fluid Mech.* **718**, 246 (2013).
52. Cummings, L., Cai, C., Kondic, L., Towards an optimal model for a bistable nematic liquid crystal display device, *J. Eng. Math.* **80**, 21 (2013).
53. Clark, A., Kondic, L., Behringer, R.P., Particle scale dynamics in granular impact, *Phys. Rev. Lett.* **109**, 238302 (2012); editor selected for a *Focus in Physics*; featured in *Scientific American* (Dec. 11, 2012) and *Nature* (Dec. 19, 2012).
54. Fowlkes, J., Kondic, L., Diez, J., Gonzalez, A., Wu, Y., Roberts, N., McCold C., Rack, P., Parallel Assembly of Particles and Wires on Substrates by Dictating Instability Evolution in Liquid Metal Films, *Nanoscale* **4**, 7376 (2012).
55. Nguyen, T., Fuentes-Cabrera, M., Fowlkes, J., Diez, J., Gonzalez, A.G., Kondic, L., Rack, P., Competition between collapse and breakup in nanometer-sized thin rings using molecular dynamics and continuum modeling, *Langmuir* **28**, 13960 (2012).
56. Kondic, L., Goullet, A., O'Hern, C.S., Kramar, M., Mischaikow, K., Behringer, R.P., Topology of force networks in compressed granular media, *Europhys. Lett.* **97**, 54001 (2012).
57. Kondic, L., Fang, X., Losert, W., O'Hern, C.S., Behringer, R.P., Microstructure Evolution during Impact on Granular Matter, *Phys. Rev. E* **85**, 011305 (2012).
58. Lin, T., Kondic, L., Filippov, A., Thin hanging films with fronts: three dimensional flow, *Phys. Fluids* **24**, 022105 (2012).

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PUBLISHED BOOK CHAPTERS AND PROCEEDINGS ARTICLES

1. Kondic, L., Kramar, M., Kovalcinova, L., Mischaikow, K., Evolution of force networks in dense granular systems close to jamming, *European Physical Journal Web of Conferences*, **140**, 15014 (2017).
2. Clark, A., Petersen, A., Kondic, L, O'Hern, C., Behringer, R. P., Granular Impact: A Grain-scale Approach, page 319 - 352, in *Rapid Penetration into Granular Media*, Iskander, M., Bless, S., Omidvar, M., Elsevier, 2015.
3. Clark, A., Kondic,. L, Behringer, R.P., Granular Impact Dynamics: Fluctuations at Short Time Scales, *Powders and Grains 2013*, AIP Conference Proceedings **1542**, page 413-416 (2013).
4. Lin, T-S., Cummings, L., Kondic, L., Modeling of three dimensional liquid crystal droplets, Proceedings of the International Liquid Crystal Conference ILCC 2012, page 1-4 (2012).
5. Rosato, A.D., Ratnaswamy, V., Horntrop, D.J., Dybenko, O., Kondic, L., A Concise Review of Tapped Density Relaxation and Recent Discrete Element Results, IUTAM Symposium "Mathematical Modelling and Physical Instances of Granular Flows", ed. J. Goddard, P. Giovine, J. Jenkins, AIP Conference Proceedings **1227**, page 89-99 (2009).
6. Diez, J., Gonzalez, A.G., Kondic, L., Stability of finite-length rivulet under partial wetting conditions, *Journal of Physics: Conference Series* **166**, 012009 (2009).
7. Kondic, L., Fang, X., Dybenko, O.M., Behringer, R.P., Energy transport through dense granular matter, *Powders and Grains 2009*, eds. M. Nakagawa and S. Luding, AIP Conference Proceedings **1145**, page 293-296 (2009).
8. Rosato, A.D., Ratnaswamy, V., Horntrop, D., Dybenko, O., Kondic, L., Density relaxation of granular matter via Monte Carlo and discrete element simulations, *Powders and Grains 2009*, eds. M. Nakagawa and S. Luding, AIP Conference Proceedings **1145**, page 481-484 (2009).
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10. Murisic, N., Kondic, L., On modeling evaporation of sessile drops, *The Proceedings of the 2008 Annual Meeting of Aiche,* 1-2, ISBN 978-0-816910-1050-2 (2008).
11. Kondic, L., Diez, J., Breakup of finite fluid films, *Proceedings in Applied Mathematics and Mechanics,* **7**, 1090601-2 (2008).
12. Kondic, L., Behringer, R. P., Signal propagation through dense granular systems, *Proceedings in Applied Mathematics and Mechanics,* **7**, 1090607-8 (2008).
13. Murisic, N., Kondic, L., Instabilities of Volatile Drops, *Proceedings in Applied Mathematics and Mechanics,* **7**, 2100039-40 (2008).
14. Kondic, L., Behringer, R. P., Elastic Energy, Fluctuations and Temperature for Granular Materials, *Proceedings of the 5th International Conference on Micromechanics of Granular Media, Powders and Grains 2005*, Stuttgart, Germany, ed. R. Garcia-Rojo, H. J.

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15. Kondic, L., Behringer, R. P., Extended granular temperature, *Proceedings of the XXI International Congress on Theoretical and Applied Mechanics*, Warsaw, Poland, Proceedings on CD-ROM: ISBN 83-89697-10-1 (2004).
16. Gonzalez, A., Diez, J., Gomba, J., Gratton, R., Kondic, L., Spreading of thin two-dimensional strip of fluid on a vertical plane: Experiments and modeling, *Proceedings of the VIII Meeting on Recent Advances in Physics of Fluids and its Applications*, 18-36 (2003).
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18. Kondic, L, Utter, B., Behringer, R.P., Dynamics of Sheared Granular Materials, *Proceedings of the Sixth Microgravity Fluids Physics and Transport Phenomena Conference*, 453-475 (2002).
19. Kondic, L., Diez, J., Instabilities in the flow of thin liquid films, *Proceedings of IUTAM Symposium on Free Surface Flows*, eds. A. C. King and Y. D. Shikhmurzaev, Fluid Mechanics and its Applications **62**, 161-168 (2001), Kluwer Academic Publishers, Norwell, MA.
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22. Metcalfe, G., Tennakoon, S.G.K., Kondic, L, Schaeffer, D.G., Behringer, R.P., Solid-Liquid Transitions of Horizontally Shaken Dry Granular Materials, *Powders and Grains 2001*, ed. Y Kishino, Balkema, Rotterdam, 513-516 (2001).
23. Diez, J., Kondic, L., Instability of the contact line in thin film spreading, (Inestabilidades de linea de contacto en flujos de capas delgadas), *Anales de la Asociacion Fisica Argentina* **12**, 98-102 (2000), Asociacion Fisica Argentina (AFA) publishers (2000).
24. Diez, J., Kondic, L., Bertozzi, A.L., A two-dimensional code for thin films, *Proceedings of the Fluid Dynamics Conference of Argentinian Physical Society*, 35-40 (1999).
25. Kondic, L., Bertozzi, A.L., Thin liquid films: Instabilities of driven coating flows on a rough surface, *Dynamics in Small Confining Systems IV*, eds. J. M. Drake, G. S. Grest, J. Klafter, and R. Kopelman, Materials Research Society Proceedings Series **543**, 213-218 (1999).
26. Kondic, L., Tennakoon, S.G.K., Painter, B., Behringer, R.P., eds. J. M. Drake, G. S. Grest, J. Klafter, and R. Kopelman, Friction-based segregation of 2D granular assembly, *Dynamics in Small Confining Systems IV*, Materials Research Society Proceedings Series **543**, 357-362 (1999).
27. Kondic, L., Fast, P., Shelley, M.J., About computations of Hele-Shaw flow of non-Newtonian fluids, *Dynamics in Small Confining Systems IV*, eds. J. M. Drake, G. S. Grest, J. Klafter, and R. Kopelman, Materials Research Society Proceedings Series **543**, 207-212 (1999).
28. Dan, M., Cheeke, J.D.N., Kondic, L., Experimental observation of the effect of ambient pressure on single bubble sonoluminescence, *Proceedings of the Joint Conference of ASA, EAA and DAGA*, Proceedings in CD-ROM: 1PPAD_8, 4 pages (1999).
29. Diez, J., Kondic, L., Bertozzi, A.L., A two-dimensional code for thin films, *Proceedings of the Fluid Dynamics Conference of Argentinian Physical Society*, 35-40 (1999).
30. Behringer, R.P., Howell, D., Kondic, L., Tennakoon, S.G.K., Veje, C., Gravity and granular materials, *Proceedings of The Fourth NASA Microgravity Fluid Physics Transport Phenomena Conference*, 6 pages (1998).

PRESENTATIONS

PLENARY

1. Division of Fluid Mechanics of the Argentinian Physical Society Annual Meeting, Buenos Aires, Argentina, November 2012.
2. Annual Meeting of Argentinian Physical Society, La Plata, Argentina, April 2005.

INVITED

1. Modeling liquid crystal films on nanoscale, *BIRS Workshop on Modeling of Thin Liquid Films - Asymptotic Approach versus Gradient Dynamics*, Banff, Alberta, Canada, April 2019.
2. Topological measures describing interaction networks in dense particulate systems, *Workshop on Data Driven Dynamics: Algebraic Topology, Combinatorics and Analysis*, Centre de recherches mathmatiques, Montreal, Canada, April 2019.
3. Quantifying interaction networks in particulate systems, *Lorentz Center Workshop on Granular Matter across scales*, Leiden, The Netherlands, March 2019.
4. Modeling thin liquid films: from liquid crystals to liquid metals, Department of Physics, Rutgers University, Newark, NJ, February 2019.
5. Modeling thin liquid films: from liquid crystals to liquid metals, Department of Physics, Rutgers University, Piscataway, NJ, November 2018.
6. Percolation and Persistence of compressed granular matter, Department of Physics, University of Navarra, Pamplona, Spain, October 2018.
7. Percolation and Persistence of compressed granular matter, Department of Mathematics, University of Buenos Aires, Buenos Aires, Argentina, August 2018.
8. Stability of liquid films of nanoscale thickness, *IUTAM Symposium on Dynamics and Stability of Fluid Interfaces,* Gainesville, FL, April 2018.
9. Stability of fluid films of nanoscale thickness involving contact lines, *IMA Workshop on Dynamic Contact Lines: Progress and Opportunities,* Minneapolis, MN, March 2018.
10. Modeling thin liquid films: from liquid crystals to liquid metals, Courant Institute of Mathematical Sciences, New York University, New York, NY, March 2018.
11. Energy Dissipation in Particulate Matter with Cohesion, Universidad Tecnologica Nacional, La Plata, Argentina, August 2017.
12. Topological properties of force networks in dense particulate systems, *DARPA MoDyL Workshop*, Washington, DC, March 2017.
13. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, Department of Applied Mathematics, University of Arizona, Tucson, AZ, October 2016.
14. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, *CECAM Workshop "Non-equilibrium dynamics of thin films - solids, liquids and bioactive materials"*, Lausanne, Switzerland, September 2016.
15. Force networks in particulate-based systems: persistence, percolation, and universality, Department of Engineering Technology, Twente University, Enschede, The Netherlands, June 2016.
16. Force networks in particulate-based systems: persistence, percolation, and universality, Department of Mathematics, Rutgers University, Piscataway, NJ, February 2016.
17. Statics and dynamics of granular force networks, *DARPA Dynamics, Geometry, and Big Data Sets Workshop,* Washington, DC, May 2015.
18. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, Wageningen University, Wageningen, The Netherlands, May 2015.
19. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, Department of Mathematics, University Carlos III, Madrid, Spain, March 2015.
20. Structure of contact and force networks in dense granular matter: From percolation to persistence, *PASI on Particulate Media,* La Plata, Argentina, August 2014.

21. Evolution of force networks in dense particulate matter, *Workshop on Grand Challenges in particulate media: From granular matter to colloids and active matter,* La Plata, Argentina, August 2014.
22. Instabilities of thin fluid films, The Physics of Fluids Group, Twente University, Enschede, The Netherlands, May 2014.
23. Statics and Dynamics of Force Networks in Dense Particulate Systems, *Northeast Complex Fluids and Soft Matter Workshop*, Piscataway, NJ, October 2013.
24. Instabilities and pattern formation in thin liquid films: from. micrometric to nanometric scales, *9th Ibero-American Workshop on Complex Fluids*, Maceio, Brazil, October 2013 (presented by J. Diez).
25. Mechanical response of granular matter exposed to impact, *Northeastern Granular Materials Workshop,* New Haven, CT, July 2013.
26. Instabilities of liquid metals on nanoscale, Department of Mathematics, University of Barcelona, Barcelona, Spain, July 2013.
27. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, Center of Mathematical Research, Barcelona, Spain, June 2013.
28. Understanding dense particulate matter, Universidad Tecnologica Nacional, La Plata, Argentina, May 2013.
29. Understanding dense particulate matter, University of Buenos Aires, Buenos Aires, Argentina, April 2013.
30. Persistence of force networks in compressed granular media, Universidad Tecnologica Nacional, La Plata, Argentina, March 2013.
31. Films, rings and rivulets: Instabilities of liquid metals on nanoscale, *BIRS Workshop on Thin Liquid Films and Fluid Interfaces: Models, Experiments, and Applications*, Banff, Alberta, Canada, December 2012.
32. Thin fluid films on nanoscale: spreading, breaking, jumping, *Division of Fluid Mechanics of Argentine Physical Society Annual Meeting,* Buenos Aires, Argentina, November 2012.
33. From Energy Propagation to Force Networks in Dense Granular Matter, Department of Applied Mathematics and Applied Physics, Columbia University, New York, NY, October 2012.
34. Persistence of force networks in compressed granular media, *International Workshop on Computational Mechanics of Materials (IWCMM 2012),* Baltimore, MD, September 2012.
35. Films, rings, rivulets: application to liquid metals on nanoscale, *Multiflow Workshop,* Free University Brussels, Brussels, Belgium, June 2012.
36. From Energy Propagation to Force Networks in Dense Granular Matter, Department of Physics, Friedrich-Alexander Erlangen-Nürnberg University, Erlangen, Germany, June 2012.
37. Instabilities of Nanoscale Liquid Metal Films, Department of Mathematics, Imperial College, London, United Kingdom, March 2012.
38. Instabilities of Thin Liquid Films, Department of Physics, Saarlandes University, Saabrücken, Germany, March 2012.
39. Evolution of Nanoscale Liquid Metal Films, Montclair State University, Montclair, NJ, February 2012.
40. Modeling Dense Granular Matter, Soft Matter Seminar, New York University, New York City, November 2011.
41. Computational Homology Applied to Granular Media, *Lorentz Center Workshop on Fluctuations and Response in Active Materials: From Driven Granular Systems to Swarming Bacteria,* Leiden, The Netherlands, June 2011.
42. Discrete Element Simulations of Dense Granular Systems, *2011 Interdisciplinary Summer School: Granular Flows: From Simulations to Astrophysical Application.* U. Maryland, College Park, MD, June 2011.
43. Modeling spreading on nematic liquid crystal droplets, *Spring Eastern Sectional Meeting of American Mathematical Society,* Worcester, MA, May 2011.

44. Mathematical modeling in materials science: two case studies, EMPA/ETH, Zürich, Switzerland, September 2010.
45. Topology of force chains in dense granular materials, *International Conference on Applied Mathematics,* Hong Kong, June 2010.
46. Dense granular materials: from discrete to continuum description, *Spring Eastern Sectional Meeting of American Mathematical Society,* Newark, NJ, May 2010.
47. Discrete and continuum models for signal propagation in dense granular matter, Max Plank Institute for Complex Systems, Göttingen, Germany, May 2010.
48. Response of dense granular materials to an external perturbation, *TCG-XI DoD/DoE Workshop,* Picatinny Arsenal, NJ, April 2010.
49. Discrete and continuum models for signal propagation in dense granular matter, Ecole Supériure de Physique et de Chimie Industrielles (ESPCI), Paris, France, March 2010.
50. Signal propagation through dense granular systems, *DARPA Granular Dynamics Workshop,* Washington, DC, February 2010.
51. Discrete and continuum models for signal propagation in dense granular matter, Institute for Pure and Applied Mathematics (IMPA), Rio de Janeiro, Brazil, July 2009.
52. Discrete and continuum models for signal propagation in dense granular matter, Institute of Physics, UNCPBA, Tandil, Argentina, July 2009.
53. Signal propagation in dense granular systems, Lorentz Institute, Leiden University, Leiden, The Netherlands, June 2009.
54. Thin film instabilities, Department of Mathematics, Bonn University, Bonn, Germany, May 2009.
55. Instabilities of fluid films, drops and rivulets, Department of Mathematics, Worcester Polytechnic University, Worcester, MA, February 2009.
56. Instabilities of fluid films, Free University Brussels, Brussels, Belgium, June 2008.
57. Evaporative drops, *AIChE Annual Meeting*, Philadelphia, PA, November 2008.
58. Breakup of finite fluid films, Levich Institute, The City College of New York, New York, NY, April 2008.
59. Finite size effects on stability of fluid films and rivulets, *Euromech 490 Workshop on Dynamics and Stability of Thin Liquid Films and Slender Jets*, London, United Kingdom, September 2007.
60. Signal propagation through dense granular media, *6th International Congress on Industrial and Applied Mathematics*, Zürich, Switzerland, July 2007.
61. Instabilities of thin liquid films, LAM Research, Fremont, CA, June 2007.
62. Instabilities of photoresist films, IBM Almaden Research Center, San Jose, CA, June 2007.
63. Instabilities in the flow of thin liquid films, School of Engineering, Universidad de Buenos Aires, Buenos Aires, Argentina, June 2006.
64. Instabilities in the flow of thin liquid films, INTEC (Instituto de Desarrollo Tecnico para la Industria Quemica), Santa Fe, Argentina, May 2006.
65. Granular systems under gravity, *IUTAM Symposium on Interactions for Dispersed Systems in Newtonian and Viscoelastic Fluids*, Guanajuato, Mexico, March 2006.
66. Dense Granular Systems, Courant Institute of Mathematical Sciences, New York University, New York, NY, February 2006.
67. On splitting of a liquid strip, *UCLA-IPAM-NSF workshop on Thin Films and Fluid Interfaces*, Los Angeles, CA, February 2006.
68. Dense Granular Systems, Department of Mechanical Engineering, New Jersey Institute of Technology, Newark, NJ, February 2006.
69. Extended Temperature for Dense Granular Systems, Department of Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ, December 2005.
70. Thin liquid films: from theory to applications, *Annual Meeting of Argentinian Physical Society*, La Plata, Argentina, September 2005 (Invited Plenary Talk).
71. Instabilities, coalescence and rupture in the flow of thin liquid films, Department of Physics,

Twente University, Enschede, The Netherlands, July 2005.
72. Temperature for dense granular systems, *Granular Physics Workshop*, Kavli Institute for Theoretical Physics, UCSB, Santa Barbara, CA, June 2006.
73. Thin liquid films with contact lines: instabilities, coalescence and rupture, *1005th Meeting of the American Mathematical Society*, Newark, DE, April 2005.
74. Instabilities in the flow of thin liquid films, Courant Institute of Mathematical Sciences, New York University, New York, NY, December 2004.
75. Dynamics of thin liquid films, *International Workshop on Pattern formation through instabilities in thin liquid films: from fundamental aspects to applications*, Dresden, Germany, September 2004.
76. Extended granular temperature, *21st International Congress on Theoretical and Applied Mechanics*, Warsaw, Poland, August 2004.
77. Instabilities in the flow of thin liquid films including contact lines, *Frontiers in Applied and Computational Mathematics*, Newark, NJ, May 2004.
78. Elastic granular temperature, *Workshop on Fluctuations and Continuum Equations for Granular Flow*, Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC, April 2004.
79. Flow of thin films on heterogeneous surfaces, *Banff Fluids Workshop*, Banff, Alberta, Canada, December 2003.
80. Extended temperature for dense granular materials, *Granular Materials Workshop*, Clark University, Worcester, MA, July 2003.
81. Contact line instabilities of thin liquid films, Levich Institute, The City University of New York, New York, NY, May 2003.
82. Contact line instabilities of thin liquid films, Department of Mathematics, University of Delaware, Newark, DE, March 2003.
83. Dynamics of Sheared Granular Materials, *The Sixth Microgravity Fluids Physics and Transport Phenomena Conference*, Cleveland, OH, August 2002.
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