

**Pedro Miguel Reis**  
**Department of Mechanical Engineering**  
**Department of Civil & Environmental Engineering**  
**Massachusetts Institute of Technology**  
**CURRICULUM VITAE**

Date: April 2, 2016

1. **Date of Birth:** April 1978

2. **Citizenship:** Portugal (US status: Permanent Resident)

3. **Education:**

School	Degree	Date
University of Manchester, UK	B.Sc.	June 1999
University of Cambridge, UK	Certificate of Advanced Studies in Mathematics (Part III Maths, M.S. level)	June 2000
University of Manchester, UK	Ph.D.	November 2004

4. **Title of Thesis for Most Advanced Degree:** Dynamics of granular segregation in driven binary monolayers

5. **Principal Fields of Interest:** Mechanics and Physics of Solids and Structures

6. **Non-MIT Experience (including military service):**

Employer	Position	Beginning	Ending
City College of New York	Post-doc	January 2004	September 2005
ESPCI/CNRS (France)	Post-doc	October 2005	June 2007
Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France	Visiting Professor	June 2013	July 2013

7. **History of MIT Appointments:**

Title	Department	Beginning	Ending
Instructor	Department of Mathematics	July 2007	June 2010
Visiting Scientist	Department of Civil and Environmental Engineering	July 2009	June 2010
Assistant Professor	Department of Civil and Environmental Engineering	July 2010	June 2014
Assistant Professor	Department of Mechanical Engineering	July 2010	June 2014
Associate Professor without tenure	Department of Civil and Environmental Engineering	July 2014	June 2018
Associate Professor without tenure	Department of Mechanical Engineering	July 2014	June 2018

## 8. Consulting Record:

<b>Firm Name / Activity Description</b>	<b>Beginning</b>	<b>Ending</b>
Schlumberger-Doll Research	October 2009	December 2015
Saint-Gobain	February 2013	August 2013

## 9. Department and Institute Committees, Other Assigned Duties:

<b>Organization / Activity Description</b>	<b>Beginning</b>	<b>Ending</b>
Department of Mechanical Engineering, MMEC (Mechanics: Modelling, Mechanics and Computation), Seminar Series, Co-organizer.	September 2009	Present
Department of Mechanical Engineering, Graduate Admissions Committee in MechE, Area 1 (Mechanics).	December 2009	December 2011
Department of Mechanical Engineering, MechE Communications Professional Search Committee, Committee member.	January 2010	March 2010
Department of Mechanical Engineering, MechE Research Speed Dating Event, Co-organizer.	February 2011	February 2011
Department of Civil & Environmental Engineering, CEE Research Speed Dating Event (2011, 2012, 2013, 2014, 2015), Co-founder and co-organizer.	February 2011	February 2015
Department of Mechanical Engineering, Mechanical Engineering Strategic Planning Exercise, Committee member.	June 2011	August 2011
Department of Civil & Environmental Engineering, Taskforce for the Enhancement of Undergraduate Enrollment in CEE, Committee member.	September 2011	May 2012
MIT International Science and Technology Initiatives (MISTI), Global Seed Funds Evaluation Committee, Reviewer of proposals.	September 2011	November 2011
Department of Civil & Environmental Engineering, DES4 - CEE's Distinguished Engineering and Science Speaker Seminar Series, Co-founder and co-organizer.	October 2011	October 2011
CEE Faculty Search Committee, Regular Member.	November 2012	April 2013
School of Engineering Department Head Search Advisory Committee for Department of Civil & Environmental Engineering, Committee member.	March 2013	May 2013
Department of Civil & Environmental Engineering, CEE Mechanics, Infrastructure and Systems Council, Council member.	September 2013	Present
CEE Faculty Search Committee (Regular Member).	October 2013	May 2014
Department of Civil & Environmental Engineering, Pierce Lab Space Council, Council member.	February 2014	June 2014
CEE Faculty Search Committee (Regular Member).	October 2014	July 2015
MIT International Science and Technology Initiatives (MISTI), Global Seed Funds Evaluation Committee, Reviewer of proposals.	October 2014	October 2014
MIT International Science and Technology Initiatives (MISTI), MIT-France Seed Fund Selection Board, Reviewer of proposals and Selection board member.	December 2014	December 2014
CEE Faculty Search Committee (Regular Member).	December 2015	Present

CEE Digital Learning Committee (Regular Committee)	April 2016	Present
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**10. Professional Service:**

<b>Organization / Activity Description</b>	<b>Beginning</b>	<b>Ending</b>
American Physical Society, Focus Session series "Extreme Mechanics" March Meetings (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016), Founder and organizer.	March 2008	Present
NEW.Mech, Organizer of NEW.Mech: New England Workshop of Materials and Structures (2010, 2011, 2012, 2013, 2014, 2015), Co-founder and organizer.	September 2010	Present
American Society of Mechanical Engineers, Technical Committee on "Soft Materials", Committee member.	November 2010	November 2012
National Science Foundation, Civil, Mechanical and Manufacturing Innovation (CMMI) Division, Mechanics of Materials Program (MoM-x), Reviewer panelist (unsolicited proposals).	March 2011	March 2011
Society of Engineering Science, Organizer of Symposium on "Soft Materials and Structures" (2011,2012, 2013, 2014, 2015), Founder and organizer.	October 2011	Present
National Science Foundation, Civil, Mechanical and Manufacturing Innovation (CMMI) Division, Mechanics of Materials Program (MoM-x), Reviewer panelist (CAREER proposals).	November 2011	November 2011
ASME, Technical Committee on "Instability in Solids and Structures", Committee Member.	November 2012	Present
Society of Engineering Science, Minisymposium "Mechanics and Materials in the Oilfield", Co-founder and organizer.	August 2013	July 2013
American Society of Mechanical Engineers, Minisymposium "Engineering Mechanics in the Oilfield" at the International Congress of Mechanical Engineering (2013, 2014, 2015), Co-organizer.	November 2013	November 2015
National Science Foundation, Division of Materials Research, Proposal Reviewer	May 2014	May 2014
Extreme Mechanics Letters, Academic Journal, Member of the Editorial Board.	August 2014	Present
American Physical Society, Sorters meeting of the March Meeting 2015, Sorter of abstracts and program coordinator.	December 2014	December 2014
"Designer Matter" Workshop (AMOLF, Amsterdam, NL). Co-organizer.	June 2015	June 2015
American Mechanics Division of the American Society of Mechanical Engineers, Executive Committee, Recording Secretary.	November 2015	Present
Society of Engineering Science, Board of Directors, Board Member.	December 2015	Present
Society of Engineering Science, Minisymposium "Instability of Solids and Structures", Co-organizer.	February 2016	Present

**11. Awards Received:**

<b>Award</b>	<b>Date</b>
Delta Prize, University of Manchester, UK	June 1997
Hatfield Scholarship, University of Manchester, UK	June 1998
PPARC Award for the Best Physics Student in the UK, The Science, Technology and Engineering Awards, UK	July 1998
Platt Prize, University of Manchester, UK	June 1999
Benefactor's Scholarship, St. John's College, Cambridge, UK	August 2000
John Bink Prize, University of Manchester, UK	June 2002
Skinner Prize, Royal Society of Chemistry	September 2002
Carl Storm International Diversity Fellowship Gordon Research Conferences	March 2006
Winner, Image Gallery, GSNP- APS (video category)	March 2008
Winner, Gallery of Fluid Motion, DFD-APS (poster category)	November 2008
Best Poster Prize at the NSF workshop: "New Frontiers of Solid Mechanics - From Earthquakes to Single Molecules", Brown University.	July 2011
Esther and Harold E. Edgerton Career Development Chair, Massachusetts Institute of Technology	July 2010-June 2013
Portuguese American Post-Graduate Society Leadership Award (PAPS-LBC)	April 2012
Brilliant 10, Popular Science Magazine	September 2013
National Science Foundation Faculty Early Career Development (CAREER) Award	January 2014
GSNP's Best Student Speaker Award at the March Meeting of the American Physical Society (Khalid Jawed)	March 2014
Gilbert W. Winslow (1937) Career Development Chair, Massachusetts Institute of Technology	July 2014-June 2016
1st Prize in poster competition at NEW.Mech 2014, with Khalid Jawed (graduate student) and Noor Khouri (UROP)	October 2014
Thomas J.R. Hughes Young Investigator Award (upcoming), American Mechanics Division, American Society of Mechanical Engineers.	November 2016

**12. Current Organization Memberships:**

<b>Organization</b>	<b>Offices Held (if any)</b>	<b>Beginning</b>	<b>Ending</b>
American Physical Society		2002	
American Society of Mechanical Engineers	Member of the Executive Committee of the American Mechanics Division	2009	
Society of Engineering Science	Member of the Board of Directors	2009	

### 13. Patents and Patent Applications Pending:

#	Patent Description	Patent Date
1	Miller, J. T., Wicks, N., Pabon, J. A., and Reis, P.M., "Method and system for extending reach in deviated wellbores using selected vibration frequency", US Patent US20150159452 A1, June 11, 2015.	June 2015
2	Miller, J. T., Wicks, N., Pabon, J. A., Su, T., and Reis, P.M., "Method and system for extending reach in deviated wellbores using selected injection speed", US Patent US20150159447 A1, June 11, 2015.	June 2015

# Publications of Pedro Miguel Reis

## 1. Papers in Refereed Journals

	Publication Name	Publication Date
1.1	<b>Reis P.M.</b> and Mullin T., "Granular segregation as a critical phenomenon", <i>Phys. Rev. Lett.</i> <u>89</u> , 244301, 1-4 (2002).	2002
1.2	Roman B., <b>Reis P.M.</b> , Audoly B., de Villiers S., Vignie V. and Vallet D., "Oscillatory fracture paths in thin elastic sheets" <i>C.R. de Mecanique</i> <u>331</u> , 811-816 (2003).	2003
1.3	<b>Reis P.M.</b> , Ehrhardt G., Stephenson A. and Mullin T., "Gases, liquids and crystals in granular segregation" <i>Europhys. Lett.</i> <u>66</u> (3), 357-363 (2004).	2004
1.4	Ehrhardt G., Stephenson A. and <b>Reis P.M.</b> , "Segregation Mechanisms in a Numerical Model of a Binary Granular Mixture" <i>Phys. Rev. E</i> <u>71</u> , 041301, 1-11 (2005).	2005
1.5	Audoly B., Roman B. and <b>Reis P.M.</b> , "Cracks in Brittle Thin Sheets: When Geometry Rules the Fracture Path" <i>Phys. Rev. Lett.</i> <u>95</u> , 025502, 1-4 (2005).	2005
1.6	Audoly B., Roman B. and <b>Reis P.M.</b> , "Comment on The Cycloidal Wake of a cylinder Tearing Through a Thin Sheet" <i>Phys. Rev. Lett.</i> <u>94</u> , 129601, 1 (2005).	2005
1.7	<b>Reis P.M.</b> , Ingale R.A. and Shattuck M.D., "Crystallization of a quasi-two-dimensional granular fluid" <i>Phys. Rev. Lett.</i> <u>96</u> , 258001, 1-4 (2006).	2006
1.8	<b>Reis P.M.</b> , Sykes T. and Mullin T., "Phases of granular segregation in a binary mixture" <i>Phys. Rev. E</i> <u>74</u> , 051306, 1-13 (2006).	2006
1.9	<b>Reis P.M.</b> , Ingale R.A. and Shattuck M.D., "Caging dynamics in a granular fluid" <i>Phys. Rev. Lett.</i> <u>98</u> , 188301, 1-4 (2007).	2007
1.10	<b>Reis P.M.</b> , Ingale R.A. and Shattuck M.D., "Forcing independent velocity distributions in an experimental granular fluid" <i>Phys. Rev. E</i> <u>75</u> , 051311, 1-14 (2007).	2007
1.11	<b>Reis P.M.</b> , Kumar A., Shattuck M.D. and Roman B., "Unizip Instabilities: straight to oscillatory transitions in the cutting of thin elastic sheets" <i>Europhys. Lett.</i> <u>82</u> , 64002, 1-6 (2008).	2008
1.12	<b>Reis P.M.</b> , Audoly B., Roman B., "Cracking sheets: Oscillatory fracture paths in thin elastic sheets" <i>Chaos</i> <u>18</u> , 041108, 1 (2008).	2008
1.13	Hamm E., <b>Reis P.M.</b> , LeBlanc M., Roman B., Cerda E., "Tearing as a test for mechanical characterization of thin adhesive films" <i>Nature Materials</i> <u>7</u> , 386-390 (2008).	2008
1.14	Jung S., <b>Reis P.M.</b> , James. J., Clanet C. and Bush J.W., "Capillary Origami in Nature" <i>Phys. Fluids</i> <u>21</u> , 091110, 1 (2009).	2009
1.15	Vella D., Bico J., Boudadoud A., Roman B. and <b>Reis P.M.</b> , "Delamination of thin elastic sheets adhered to an elastic substrate" <i>Proc. Natl. Acad. Sci. U.S.A.</i> <u>106</u> (27), 10901-10906 (2009).	2009
1.16	<b>Reis P.M.</b> , Corson F., Boudadoud A. and Roman B., "Localization through surface folding in solid foams under compression" <i>Phys. Rev. Lett.</i> <u>103</u> , 045501, 1-4 (2009).	2009
1.17	Bertoldi K., <b>Reis P.M.</b> , Willshaw S. and Mullin T., "Negative Poisson's ratio behavior induced by an elastic instability" <i>Advanced Materials</i> <u>22</u> , issue 3, 361-366 (2009).	2009

1.18	Sen D., Novoselov K., <b>Reis P.M.</b> and Buehler M.J., "Tearing of graphene sheets from adhesive substrates produces tapered nanoribbons" <i>Small</i> <u>6</u> (10), 1108-1116 (2010).**	2010
1.19	<b>Reis P.M.</b> , Hure J., Jung S., Bush J.W.M. and Clanet C., "Grabbing Water" <i>Soft Matter</i> <u>6</u> , 5705-5708 (2010).	2010
1.20	Buchak P., Eloy C. and <b>Reis P.M.</b> , "The Clapping Book: wind-driven oscillations in a stack of elastic sheets" <i>Phys. Rev. Lett.</i> <u>105</u> , 194301, 1-4 (2010).**	2010
1.21	Raux P.S., <b>Reis P.M.</b> , Bush J.W.M., and Clanet C., "Rolling Ribbons" <i>Phys. Rev. Lett.</i> <u>105</u> , 044301, 1-4 (2010).**	2010
1.22	<b>Reis P.M.</b> , Jung S., Aristoff J. and Stocker R., "How Cats Lap: Water uptake by <i>Felis catus</i> " <i>Science</i> <u>330</u> (6008), 1231-1234 (2010).**	2010
1.23	Aristoff J.M., Stocker R., <b>Reis P.M.</b> and Jung S., "On the water-lapping of felines and the water-running of lizards: a unifying physical perspective" <i>Communicative &amp; Integrative Biology</i> <u>4</u> (2), 213-215 (2010).**	2010
1.24	Stocker R., Jung S., Aristoff J. and <b>Reis P.M.</b> , "Response to Comments on 'How Cats Lap: Water Uptake by <i>Felis Catus</i> '", <i>Science</i> <u>334</u> (6054), 311-c (2011).**	2011
1.25	Akono A-T., <b>Reis P.M.</b> , and Ulm F-J., "Scratching as a Fracture Process: From Butter to Steel", <i>Phys. Rev. Lett.</i> <u>106</u> , 204302, 1-4 (2011).**	2011
1.26	Vandeparre H., Pineirua M., Brau F., Roman B., Bico J., Gay C., Bao W., Lau C.N., <b>Reis P.M.</b> and Damman P., "Wrinkling Hierarchy in Constrained Thin Sheets from Suspended Graphene to Curtains" <i>Phys. Rev. Lett.</i> <u>106</u> , 224301, 1-4 (2011).	2011
1.27	<b>Reis P.M.</b> , "Folded in hierarchy," <i>News &amp; Views, Nature Materials</i> <u>10</u> , 907.	2011
1.28	Shim J., Perdigou C., Chen E.R., Bertoldi K. and <b>Reis P.M.</b> , "Buckling induced encapsulation of structured elastic shells under pressure" <i>Proc. Natl. Acad. Sci. U.S.A.</i> <u>109</u> (16), 5978, 1-6 (2012).**	2012
1.29	Lazarus A., Florijn H.C.B. and <b>Reis P.M.</b> , "Geometry-induced rigidity in non-spherical pressurized elastic shells" <i>Phys. Rev. Lett.</i> <u>109</u> , 144301, 1-5 (2012).**	2012
1.30	Nasto A., Ajdari A., Lazarus A., Vaziri A and <b>Reis P.M.</b> , "Localization of deformation in thin shells under indentation" <i>Soft Matter</i> <u>9</u> , 6796-6803. Special Themed Issue on "Emerging Investigators in Soft Matter" (2013).**	2013
1.31	Lazarus A., Miller J.T., Metlitz M. and <b>Reis P.M.</b> "Contorting a heavy and naturally curved elastic rod", <i>Soft Matter</i> <u>9</u> , 8274-8281, Special themed issue on "Geometry and Topology of Soft Materials" (2013).**	2013
1.32	Lazarus A., Miller J.T. and <b>Reis P.M.</b> , "Continuation of equilibria and stability of slender elastic rods using an asymptotic numerical method" <i>J. Mech. Phys. Solids</i> <u>61</u> , 1712-1736 (2013). **	2013
1.33	Terwagne D., Brojan M., and <b>Reis P.M.</b> "Smart Morphable Surfaces for Aerodynamic Drag Control" <i>Advanced Materials</i> <u>26</u> (38), 6608 (2014).	2014
1.34	Miller J.T., Mulcahy C.G., Pabon J., Wicks N. and <b>Reis P.M.</b> , "Extending the Reach of a Rod Injected into a Cylinder Through Distributed Vibration" <i>J. Appl. Mech.</i> <u>82</u> , 021003-021008 (2014).**	2014
1.35	Jawed M.K. and <b>Reis P.M.</b> , "Pattern morphology in the elastic sewing machine" <i>Extreme Mechanics Letters</i> <u>1</u> , 76-82 (2015).**	2014
1.36	Nasto A. and <b>Reis P.M.</b> , "Localized Structures in Indented Shells: a Numerical Investigation" <i>J. Appl. Mech.</i> , <u>81</u> , 121008-121015 (2014).**	2014

1.37	Jawed M.K., Da F., Joo J., Grinspun E., and <b>Reis P.M.</b> , "Coiling of elastic rods on rigid substrates" Proc. Natl. Acad. Sci. U.S.A., 111, (41), 14663-14668 (2014).**	2014
1.38	Jawed M.K., <b>Reis P.M.</b> , "Pattern morphology in the elastic sewing machine" Extreme Mech. Lett. <u>1</u> , 76-82 (2014).**	2014
1.39	Miller J.T., Lazarus A., Audoly B. and <b>Reis P.M.</b> "Shapes of a Suspended Curly Hair", Phys. Rev. Lett. <u>112</u> , 068103 (2014).**	2014
1.40	Su T., Liu J., Terwagne D., <b>Reis P.M.</b> and Bertoldi K. "Buckling of an elastic rod embedded on an elastomeric matrix: planar vs. non-planar configurations" Soft Matter <u>10</u> , 6294 (2014).	2014
1.41	Jawed M. K., Khouri N., Da F., Grinspun E. and <b>Reis P.M.</b> , "Propulsion and instability of flexible helical rod rotating in viscous fluid" Phys. Rev. Lett. <u>115</u> , 168101 (2015).**	2015
1.42	A. Lazarus and <b>Reis P.M.</b> "Soft Actuation of Structured Cylinders through Auxetic Behavior" Adv. Eng. Mater. <u>17</u> (6), 815-820.	2015
1.43	Miller J.T., Su T., Dussan E.B., Pabon J., Wicks N., Bertoldi K. and <b>Reis P.M.</b> "Buckling-induced lock-up of a slender rod injected into a horizontal cylinder", Int. J. Solids Struct. <u>72</u> , 153-164 (2015).**	2015
1.44	Jawed M.K., Brun P.-T., and <b>Reis P.M.</b> "A geometric model for the coiling of an elastic rod deployed onto a moving substrate" J. Appl. Mech. <u>82</u> (2), 1210007 (2015).**	2015
1.45	Jawed M.K., Dieleman P., Audoly B. and <b>Reis P.M.</b> "Untangling the Mechanics and Topology in the Frictional Response of Long Overhand Elastic Knots" Phys. Rev. Lett. <u>115</u> , 118302 (2015). **	2015
1.46	Brojan M., Terwagne D., Lagrange R. and <b>Reis P.M.</b> , "Wrinkling crystallography on spherical surfaces" Proc. Natl. Acad. Sci. U.S.A. <u>112</u> (1), 14-19 (2015).	2015
1.47	Stoop N., Lagrange R., Terwagne D., <b>Reis P.M.</b> , Dunkel J. "Curvature-induced symmetry breaking of elastic surface patterns" Nature Materials <u>14</u> , 337-342 (2015).	2015
1.48	Miller J.T., Su T., Pabon J., Wicks N., Bertoldi K., <b>Reis P.M.</b> , "Buckling of a thin elastic rod inside a horizontal cylindrical constraint" Extreme Mech. Lett. <u>3</u> , 36-44 (2015).**	2015
1.49	Miller J.T., Mulcahy C.G., Pabon J., Wicks N., <b>Reis P.M.</b> , "Extending the Reach of a Rod Injected into a Cylinder Through Distributed Vibration" J. Appl. Mech. <u>82</u> , 021003 (2015).**	2015
1.50	Fryer M., Terwagne D., <b>Reis P.M.</b> and Nepf H. "Fabrication of flexible blade models from a silicone-based polymer to test the effect of surface corrugations on drag and blade motion." Limnol. Oceanogr. Methods, <u>13</u> (11), 630-639 (2015).**	2015
1.51	<b>Reis P.M.</b> "A Perspective on the Revival of Structural (in)stability with Novel Opportunities for Function: from Buckliphobia to Buckliphilia" J. Appl. Mech., <u>82</u> , (11), 111001 (2015).	2015
1.52	<b>Reis P.M.</b> , Jaeger H.M. and van Hecke M., "Designer Matter: A perspective", Extreme Mech. Lett. <u>5</u> , 25-29 (2015).	2015
1.53	<b>Reis P.M.</b> , López Jiménez F. and Marthelot J., "Transforming architecture inspired by origami" Proc. Natl. Acad. Sci. U.S.A. <u>112</u> (40), 12234-12235 (2015).	2015

1.54	Mulcahy C.G., Su T., Wicks N., <b>Reis P.M.</b> "Extending the reach of a rod injected into a cylinder through axial vibration" J. Appl. Mech., <u>83</u> (5), 051003 (2016).**	2016
1.55	Jawed M.K. and <b>Reis P.M.</b> "Deformation of a soft helical filament in an axial flow at low Reynolds number" Soft Matter <u>12</u> , 1898-1905 (2016). **	2016
1.56	López Jiménez F., Kumar S. and <b>Reis P.M.</b> "Soft color composites with tunable optical transmittance" Adv. Opt. Mater., DOI: 10.1002/adom.201500617, in press (2016).	2016
1.57	López Jiménez F., Stoop N., Lagrange R., Dunkel J. and <b>Reis P.M.</b> , "Curvature-Controlled Defect Localization in Elastic Surface Crystals" Phys. Rev. Lett., <u>116</u> , 104301 (2016).	2016
1.58	Lagrange R., Lopez Jimenez F., Terwagne D., Brojan M. and <b>Reis P.M.</b> "From wrinkling to global buckling of a ring on a curved substrate", J. Mech. Phys. Solids., <u>89</u> , 77-95 (2016).	2016
1.59	Lee A., Brun P.-T., Marthelot J., Balestra G., Gallaire F. and <b>Reis P.M.</b> "Fabrication of slender elastic shells by the coating on curved surfaces" Nature Communications, <u>Z</u> , 11155 (2016).**	2016

## 2. Proceedings of Refereed Conferences

	Publication Name	Publication Date
2.1	<b>Reis P.M.</b> , Ehrhardt G. and Mullin T., "Segregation phases in a vibrated binary granular layer," Unifying concepts in the Physics of Glasses and Granular media, Capri, Italy, pp. 99. eds. A. Coniglio, A. Fierro, H.J. Herrmann and M. Nicodemi (2003).	2003
2.2	Audoly B., <b>Reis P.M.</b> and Roman B., "Oscillating fracture paths in thin brittle sheets: when geometry rules the fracture path", Proceedings of the XI International Conference on Fracture, Turin, Italy, ed. A. Carpinteri (2005).	2005
2.3	<b>Reis P.M.</b> , Roman B. and Audoly B., "Oscillating fracture paths in thin elastic sheets: when geometry rules the fracture path", Proceedings of the 16th European Conference on Fracture, Alexandroupolis, Greece, pp. 119 (Springer) (2006).	2006
2.4	Shattuck M.D., Ingale R.A., and <b>Reis P.M.</b> , "Granular Thermodynamics," AIP Conf. Proc.: Powders and Grains, Golden, CO, USA, 1145, pp. 43. (2009).	2009
2.5	Epstein A.W., Rudolph S., Einstein H.H., and <b>Reis P.M.</b> "Enhancing Design Students' Comfort and Versatility in the Shop: A Project-Based Approach." Proceedings of the American Society for Engineering Education Annual Conference, paper # 2014-9085 (2014).	2014

## 3. Other Major Publications

	Publication Name	Publication Date
3.1	Roman B., Audoly B. and <b>Reis P.M.</b> , "La déchirure en fermeture éclair," Pour la Science 323 (September 2004).	2004
3.2	<b>Reis P.M.</b> , "Geometric Nonlinearities in Thin Elastic Objects" Journal Club (June 2010), iMechanica (Web for Mechanics and Mechanicians).	2010
3.4	<b>Reis P.M.</b> , "Contortion of thin elastic rods" Journal Club (October 2013), iMechanica (Web for Mechanics and Mechanicians).	2013

#### 4. Invited Lectures

	Publication Name	Publication Date
4.1	"Gases, liquid and crystals in granular segregation" Manchester Centre for Nonlinear Dynamics, University of Manchester, UK.	September 2002
4.2	"Patterns in the Sand," Young Physicist Conference, Institute of Physics, University of Manchester, UK.	December 2002
4.3	"Gases, liquid and crystals in granular segregation," Nonlinear Dynamics Group, University of Toronto, Canada.	April 2003
4.4	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets", Levich Institute, City College of New York.	March 2004
4.5	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets," Math Department, New Jersey Institute of Technology.	April 2004
4.6	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets," Currant Institute, New York University.	April 2004
4.7	"Gases, liquid and crystals in granular segregation," Department of Mathematics, Massachusetts Institute of Technology.	May 2004
4.8	"Gases, liquid and crystals in granular segregation," PMMH, Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), France.	October 2004
4.9	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets," PGP, University of Oslo, Norway.	November 2005
4.10	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets," Vrijdag Fysisch Colloquium, Physics Department, Leiden University, Netherlands.	December 2005
4.11	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" SPEC, Commissariat a L'Energie Atomique (CEA) France.	December 2005
4.12	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" IUSTI/IRPHE, Marseille, France.	January 2006
4.13	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" MCND, Univ. Manchester, UK.	April 2006
4.14	"The venation network in leaves as Anticracks?" Center for Soft Matter Research, New York University.	August 2006
4.15	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" Physics Department, Univ. of Konstanz, Germany.	December 2006
4.16	"The Unzip Instability: Oscillatory fracture paths in Thin Elastic Sheets," Department of Mathematics, Massachusetts Institute of Technology, Cambridge.	January 2007
4.17	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" Physics Department, Univ. of Beureuth, Germany.	February 2007
4.18	"The venation network in leaves as Anticracks?" SPCSI, Commissariat L'Energie Atomique (CEA), France.	June 2007
4.19	"Cracking sheets: Coupling elasticity of thin sheets with fracture," MMEC Seminar, Department of Mechanical Engineering, MIT.	October 2007

4.20	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" Workshop on 'Crystallization and Jamming', Lorentz Center, Leiden University, Netherlands.	February 2008
4.21	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" New England Granular Workshop, Brandeis University, Waltham.	May 2008
4.22	"Thin elastic sheets at interfaces," Vrijdag Fysisch Colloquium, Leiden Institute of Physics, Netherlands.	July 2008
4.23	"Structure and dynamics of a uniformly heated granular fluid: How far from equilibrium?" Out of equilibrium - Fall Meeting of the New England Section of the American Physical Society, UMass Boston.	October 2008
4.24	"The venation network in leaves as Anticracks?" 10th Annual Greater Boston Area Stat. Mech. Meeting, Brandeis University, Waltham.	October 2008
4.25	"Thin elastic sheets at interfaces," Squishy Physics Seminar, Harvard University.	November 2008
4.26	"Thin elastic sheets at interfaces," Computations in Science Seminars, Chicago Materials Research Center, University of Chicago.	November 2008
4.27	"Thin elastic sheets at interfaces," MMEC Seminar Series. Mechanical Eng., Massachusetts Institute of Technology.	February 2009
4.28	"Thin elastic sheets at interfaces," Invited Focus Session, "Polymer Surface Instabilities," March Meeting of the APS, Pittsburgh.	March 2009
4.29	"Thin elastic sheets at interfaces," Condensed Matter Seminar, Physics Department, University of Massachusetts at Amherst.	April 2009
4.30	"Thin elastic sheets at interfaces," Mechanics Seminar Series. Civil and Environmental Eng., Massachusetts Institute of Technology.	April 2009
4.31	"Thin elastic sheets at interfaces," Mechanical and Materials Sciences Study Group, Schlumberger-Doll Research, Cambridge.	August 2009
4.32	"Thin elastic sheets at interfaces," Physics Seminar, Department of Physics and Applied Mathematics, Universidad de Navarra, Pamplona, Spain.	December 2009
4.33	"Thin elastic sheets at interfaces," Physics Colloquium, Brandeis University.	January 2010
4.34	"The elasticity of thin elastic sheets: Scotch tape, Graphene and Sinking flowers," Condensed Matter Theory Kid's Seminar, Harvard University.	April 2010
4.35	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" Applied Mechanics Colloquium, Harvard University.	September 2010
4.36	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" Levich Institute Seminar, City College of New York.	September 2010
4.37	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" Theoretical and Applied Mechanics Seminar, Northwestern University.	October 2010
4.38	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" Walter Lecture, Department of Civil & Environmental Engineering, University of Minnesota.	October 2010

4.39	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" Mechanical Engineering and Applied Mechanics Colloquium, University of Pennsylvania.	March 2011
4.40	"The wonders of thin elastic sheets: from torn tape and sinking flowers to graphene ribbons and water grabbing" GALCIT Colloquium, California Institute of Technology	April 2011
4.41	"Coiling Spaghetti and Pressing on Eggshells" Mechanics Seminar. Brown University.	May 2011
4.42	"Coiling Spaghetti and Pressing on Eggshells" Engineering Science & Mechanics Seminar, Virginia Tech.	August 2011
4.43	"Coiling Spaghetti and Pressing Eggshells" Joint Colloquium, Applied Math / Columbia Vision and Graphics Center, Columbia University.	September 2011
4.44	"Coiling Spaghetti and Pressing Eggshells" Curren Institute of Mathematical Sciences, New York University, NY.	November 2011
4.45	"The Wonders of Slender Structures: Coiling Spaghetti and Pressing on Eggshells" Department of Civil and Environmental Engineering. University of Illinois at Urbana Champaign.	January 2012
4.46	"Geometry-Induced Rigidity, Failure And Functionality In Thin Elastic Structures", PMMH Seminars, Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), France.	June 2012
4.47	"Geometry-Induced Rigidity, Failure And Functionality In Thin Elastic Structures" Institut d'Alembert, Université Pierre et Marie Curie, Paris, France.	June 2012
4.48	"Geometry-Induced Rigidity, Failure And Functionality In Thin Elastic Structures", Department of Physics, University of Mons, Belgium.	June 2012
4.49	"Geometry-Induced Rigidity, Failure And Functionality In Thin Elastic Structures", FAST (Fluides, Automatique et Systèmes Thermiques), University Paris-Sud, France.	June 2012
4.50	"A dialogue between experiments and geometric computation on the mechanics of coiling spaghetti", Semi-Plenary Talk. World Computational Mechanics Congress, Sao Paulo, Brazil	July 2012
4.51	"Geometry-induced rigidity and functionality in thin elastic shells" Lorentz Center, Leiden University.	September 2012
4.52	"Wonders of slender structures: Coiling ropes and pressing on eggshells", Mechanical Engineering Seminar, Northeastern University.	September 2012
4.53	"Geometry-induced rigidity and functionality in thin elastic shells", School Of Physics Soft Condensed Matter And Biophysics Seminar, Georgia Institute of Technology, GA.	October 2012
4.54	"From failure to functionality in the mechanics of slender structures", Center for Mechanics of Solids, Structures and Materials Seminar, University of Texas at Austin.	November 2012
4.55	"Coiling Spaghetti: Large deformations of thin elastic rods", Gordon Research Conference on "Macromolecular Materials" Ventura, CA.	January 2013
4.56	"Eggstreme Mechanics of Thin Shells" Focus Session "Focus Session: Extreme Mechanics - Shells, Plates, and Thin Films" March Meeting of the American Physical Society, Baltimore, MD.	March 2013
4.57	"Harvesting mechanical instabilities for functionality: From buckling-induced folding to aerodynamic drag reduction" Workshop on	July 2013

Computational and Experimental Mechanics of Advanced Materials (CEMAM), King Abdullah University of Science and Technology, Saudi Arabia.

4.58	"Aesthetics and Function in Slender Structures: curly hair and drag reducing surfaces", Sibley School Colloquium, Cornell University.	10/1/2013
4.59	"Smart Morphable Surfaces for Aerodynamic Drag Control" Workshop on Programmable Functional Materials, University of Illinois at Urbana-Champaign.	5/20/2014
4.60	"Form, Failure and Function of Thin Elastic Shells" Mechanical Engineering Seminar Series, Tufts University.	11/6/2014
4.61	"Extreme Mechanics of Soft Structures", Invited Session: "Frontiers of Soft Matter", March Meeting of the American Physical Society, San Antonio, TX. Focus Session "Focus Session: Extreme Mechanics - Shells, Plates, and Thin Films" March Meeting of the American Physical Society, Baltimore, MD.	3/2/2015
4.62	"The Extreme Mechanics of Soft Structures" at the Invited Session "Frontiers of Soft Matter" March Meeting of the American Physical Society, San Antonio, TX.	3/3/2015
4.63	"Smart Morphable Skins", NIKE/RISD 'Future of Skin' symposium, Rhode Island School of Design, Providence, RI.	4/7/2015
4.64	"Active surfaces for aerodynamic drag reduction", Active Matter Summit, Massachusetts Institute of Technology.	4/24/2015
4.65	"Geometrically nonlinear deformation of slender rods: from bacteria locomotion to coiled-tubing operation in horizontal wellbores." Mini-symposium on Mechanics and Physics of Solids and Structures European Solid Mechanics Conference, Madrid, Spain.	7/6/2015
4.66	"P.D.E.s: Precision Desktop Experiments to study the mechanics of soft structure", Challenges in Nonlinear Systems, University of Manchester, UK.	9/11/2015
4.67	"Precision Desktop Experiments for the study of the mechanics of soft slender structures" National Oilwell Varco, MIT Professional Education, Cambridge, MA.	10/15/2015
4.68	"Crystallography of Ruga on Curved Surfaces", Huajian Gao's William Prager Medal Symposium, Annual Meeting of the Society of Engineering Science, Texas A&M, TX.	10/26/2015
4.69	"From Buckliphilia to Buckliphobia: Embracing mechanical instabilities of slender structures for function", Infrastructure Innovation in a Changing Environment Conference, Cambridge, MA.	11/20/2015
4.70	"Crystallography of Dimpled Wrinkling on Curved Surfaces", NYU-Oxford Workshop on Mathematical Models of Defects and Patterns, New York, NY.	1/5/2016
4.71	"From Buckliphobia to Buckliphilia: Embracing the mechanical instabilities of slender structures" Institute of Mechanical Engineering, Ecole Polytechnique Federale de Lausanne, Switzerland.	1/22/2016
4.72	"From Buckliphobia to Buckliphilia: Embracing the mechanical instabilities of slender structures", Department of Mechanical and Process Engineering, ETH Zurich, Switzerland.	1/25/2016

4.73	"From Buckliphobia to Buckliphilia: Embracing the mechanical instabilities of slender structures", Department of Mechanical & Aerospace Engineering, Princeton University, NJ.	3/25/2016
4.74	"Buckling and postbuckling of thin elastic shells", Department of Mechanical Engineering, University of Houston, TX.	4/14/2016
4.75	"The eggstreme mechanics of thin shells", Department of Mechanical and Process Engineering, ETH Zurich, Switzerland.	4/18/2016
4.76	"From Buckliphobia to Buckliphilia: Embracing the mechanical instabilities of slender structures", Widely Applied Math, Harvard University, Cambridge, MA. (upcoming)	5/3/2016
4.77	"Extreme Mechanics of slender structures", Zurich Physics Colloquium, ETH and University of Zurich, Switzerland. (upcoming)	6/1/2016
4.78	"Onset and post-buckling of constrained spherical shells" Stability of Structures, 24th International Congress of Theoretical and Applied Mechanics, Montreal, Canada. (upcoming)	8/21/2016
4.79	"Continuum Mechanics in three short hours", Physics and Mechanics of Soft Complex Materials, Cargese, France. (upcoming)	8/8/2016

## Student Thesis Summary

Degree	Total	Completed	In Progress
Bachelor's	4	3	1
Master's	8	5	3
MEng	1	0	1
PhD as Supervisor	5	1	4
PhD as Reader	13	11	2

### SUPERVISED THESES

#### Bachelor's Theses:

- Marie Rice, "Healing of defects in a two-dimensional granular crystal," May 2014 (Mechanical Engineering).
- Noor Khouri, "Propulsion of naturally curved filaments by rotation in a viscous fluid: applications to bacterial locomotion," June 2015 (Civil & Environmental Engineering).
- Ryan McDermott, "Enhanced Reach of a Rod Injected into a Cylindrical Constraint by On-Off Injection and Rotation," June 2015 (Mechanical Engineering).
- Connor McMahan (Mechanical Engineering).

#### Master's Theses:

- Feifei Niu, "Dynamic analysis of an electro-static energy harvesting system", June 2013 (Civil and Environmental Engineering).
- Alice Nasto, "S-cones: Localization of deformation in thin shells under indentation", September 2013 (Mechanical Engineering).
- Mohammad Khalid Jawed, "Coiling of elastic rods on rigid substrates", August 2014 (Mechanical Engineering).
- Mark Guttag, "Tunable surface topographies via particle-enhanced soft composites", September 2014 (Mechanical Engineering).
- Connor Mulcahy, "Rotation of a slender rod injected into a cylindrical constraint", January 2016 (Mechanical Engineering).
- Rashed Al-Rashed, "Tunable translucency of a soft composite", expected 2017 (Mechanical Engineering).
- Changyeob Baek, "Mechanics of elastic gridshells", expected 2017 (Mechanical Engineering).
- Elizabeth Strong, "Aerodynamic drag past a network of elastic rods", expected 2017 (Mechanical Engineering).

#### MEng Theses:

- Laelia Kim-Lan Vaultot, "Form finding in elastic gridshells", expected May 2016, (Civil & Environmental Engineering).

#### PhD as Supervisor Theses:

- James Miller, "Sinusoidal to Helical Buckling of Rods under Cylindrical Constraints," January 2014 (Civil and Environmental Engineering).
- Mohammad Khalid Jawed (Mechanical Engineering), expected June 2016.
- Anna Lee (Mechanical Engineering), expected 2018.
- Mark Guttag (Mechanical Engineering), expected 2018.
- Grace Goon (Aeronautics and Astronautics), expected 2019.

#### PhD as Reader Theses:

- Shawn Chester, "Mechanics of amorphous polymers and polymer gels", March 0201 (Mechanical Engineering)
- Raphael Candelier, "Dynamics and Structure close to the Glass and Jamming transitions", November 2009 (Ecole Doctorale 389, Paris 6 and CEA, Université Pierre & Marie Curie - Paris 6 and CEA)

- Dawn Wendel, "Experimental Investigation of Plant Root Growth in Granular Media", August 2011 (Mechanical Engineering)
- Samar Malek, "The Effect of Geometry and Topology on the Mechanics of Grid Shells", May 2012 (Civil and Environmental Engineering)
- Meng Luo, "Anisotropic Ductile Fracture of Metal Sheets: Experimental Investigation and Constitutive Modeling", June 2012 (Mechanical Engineering)
- Jeremy Hure, "Adhesion, Delamination et Compaction de plaques mince", June 2012 (Matière Condensee et Interfaces, Paris 7 and ESPCI, Université Paris Diderot - Paris 7 and ESPCI)
- Ange-Therese Akono, "Micro Scratch Test as an Alternative Means to Characterize Intrinsic Fracture Properties", June 2013 (Civil and Environmental Engineering)
- Tristan Giesa, "Fracture in stochastic media using discrete and continuum simulation methods (expected)", May 2015 (Civil and Environmental Engineering)
- Kwangmin Son, "Biophysics of bacterial motility, chemotaxis and viral infection", May 2015 (Civil & Environmental Engineering)
- Brandon Talamini, "Simulation of Deformation and Fracture in Very Large Shell Structures", August 2015 (Aeronautics and Astronautics)
- Narges Kaynia, "Instability-Induced Transformation of Interfacial Layers in Composites and its Multifunctional Applications", November 2015 (Mechanical Engineering)
- Benjamin Snedeker, "Mechanical failure of swell packers", (Mechanical Engineering)
- Shabnam Raayai Ardakani, "Mechanics of Flow over Polymer Wrinkled Surface", (Mechanical Engineering)

## Postdoctoral Associates and Fellows Supervised by Pedro Miguel Reis

### CURRENT POSTDOCTORAL ASSOCIATES

Name	Dates of Appointment	PhD Granting Institution
Pierre-Thomas Brun	9/1/2014 - Present	University of Paris VI
Joel Marthelot	8/10/2014 - Present	Ecole Supérieure de Physique et de Chimie Industrielles
Francisco Lopez Jimenez	11/25/2013 - Present	California Institute of Technology

### PREVIOUS POSTDOCTORAL ASSOCIATES

Name	Current Title	Current Employer
Romain Lagrange	Research Scientist	Commissariat à l'Énergie Atomique (CEA), France
Miha Brojan	Lecturer	University of Ljubljana, Slovenia
Denis Terwagne	Assistant Professor	Université libre de Bruxelles
Tianxiang Su	Research Scientist	Schlumberger
Arnaud Lazarus	Assistant Professor	University Pierre and Marie Curie, Paris, France

## Teaching Evaluations

Term	Course Number	Course Title	Teaching Role	Course Type	Number Students Registered	Number Survey Responses	Instructor Evaluation <sup>(1)</sup>	Course Evaluation <sup>(1)</sup>
FT2007	18.02	Multivariable Calculus	Recitation	Lecture	40	31	6.3	6.2
FT2007	18.02	Multivariable Calculus	Recitation	Lecture	40	31	6.3	6.2
ST2008	18.02	Multivariable Calculus	Recitation	Lecture	40	16	6.5	6.7
ST2008	18.02	Multivariable Calculus	Recitation	Lecture	40	16	6.5	6.7
ST2008	18.354	Nonlinear Dynamics II	Lecturer	Lecture	11	11	6.0	6.3
FT2008	18.384	Undergraduate Seminar in Physical Applied Mathematics	Lecturer	Lecture	9	8	6.9	6.8
FT2009	18.384	Undergrad Physical Math Seminar	Lecturer	Lecture	9	8	6.8	6.4
ST2010	18.354	Nonlinear Dynamics II	Lecturer	Lecture	9	6	5.8	5.2
FT2010	1.101	Civil & Envir Engr Design I	Instructor	Lecture	27	15	6.7	6.7
ST2011	2.002	Mechanics and Materials II	Lab Instructor	Lab	61	42	6.1	4.7
FT2011	1.101	Civil & Envir. Engr. Design I	Instructor	Lecture	30	7	6.0	6.0
ST2012	1.S991	Spec Subj: Civil & Envir. Engr.	Guest Lecture	Lecture	22	15	N/A	6.5
ST2012	2.002	Mechanics and Materials II	Lab Instructor	Lab	58	43	6.8	5.2
ST2012	2.002	Mechanics and Materials II	Lecturer	Lecture	58	43	5.6	5.2
FT2012	1.101	Civil & Envir Engr Design I	Instructor	Lecture	26	17	6.7	6.0
ST2013	2.002	Mechanics and Materials II	Lecturer	Lecture	91	42	6.0	5.2
ST2013	2.002	Mechanics and Materials II	Lab Instructor	Lab	91	42	6.0	5.2
FT2013	1.101	Civil & Envir. Engr. Design I	Instructor	Lecture	24	19	6.5	5.5
ST2015	2.002	Mechanics and Materials II	Lecturer	Lecture	91	66	6.4	5.9
FT2015	1.101	Civil & Envir. Engr. Design I	Lab Instructor	Lab	15	13	6.6	6.3

<sup>(1)</sup> Evaluation scheme: 1 = "Very Poor", 7 = "Excellent"