ERIC LAUGA

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RESEARCH AREAS

Fluid Mechanics, Biological Physics, Applied Mathematics, Mechanics of Soft Matter, Complex Fluids, Solid Mechanics.

ACADEMIC EMPLOYMENT

2017-	Professor of Applied Mathematics, Department of Applied Mathematics and Theoretical Physics, University of Cambridge
2018-	Undergraduate Tutor, Trinity College, Cambridge
2013-	Fellow and College Lecturer in Mathematics Trinity College, Cambridge
2015-2017	Reader in Applied Mathematics, Department of Applied Mathematics and Theoretical Physics, University of Cambridge
2013-2015	University Senior Lecturer, Department of Applied Mathematics and Theoretical Physics University of Cambridge
2010-2013	Associate Professor, Department of Mechanical and Aerospace Engineering University of California, San Diego
2007-2010	Assistant Professor, Department of Mechanical and Aerospace Engineering University of California, San Diego
2006-2007	Assistant Professor, Department of Mathematics, Massachusetts Institute of Technology
2005-2006	Postdoctoral associate, Department of Mechanical and Aerospace Engineering Massachusetts Institute of Technology
Spring 2005	Lecturer, Division of Engineering and Applied Sciences Harvard University

EDUCATION

2005	Ph.D.	Applied Mathematics, Harvard University. Dissertation Title: *Slip, Swim, Mix, Pack: Fluid Mechanics at the Micron Scale.* Thesis advisors: Michael P. Brenner & Howard A. Stone.
2001	M.S.	Fluid Mechanics, University of Paris VI - Pierre et Marie Curie (France).
2001	M.A.	Diplôme Corps des Mines, École des Mines de Paris (France).
1998	B.S.	Diplôme d'Ingénieur, École Polytechnique (France).

OTHER POSITIONS

June 2010	Invited Professor, Chaire Joliot, ESPCI, Paris, France.
July 2009, 2010	Invited Professor, Institut de Mécanique des Fluides de Toulouse (IMFT), France

ACADEMIC HONOURS AND AWARDS

2019	Commendation for Excellence in Part III Teaching 2019/2020, DAMTP, University of Cambridge
2018	Early Career Award for Soft Matter Research, American Physical Society.
2016	Fellow, American Physical Society.
2016	Teaching Award, Cambridge University Students' Union (Lecturer category)
2015	François Frenkiel Award for Fluid Mechanics, American Physical Society.
2015	Exemplary Mentor Award, Quality of Life Research Center, Claremont Graduate University
2012	Faculty Mentorship Award, UC San Diego Graduate Student Association.
2010-2011	Teacher of the Year Award, Department of Mechanical and Aerospace Engineering, UCSD.
2008-2013	NSF CAREER Award.
2006	Andreas Acrivos Dissertation Award in Fluid Dynamics, American Physical Society.
2005-2006	Hock Tan Postdoctoral Fellowship, Department of Mechanical Engineering, MIT.
2004, 2005	Derek Bok Teaching Award, Harvard University.
Spring 2003	Division of Engineering and Applied Sciences Teaching Award, Harvard University.
1998–2001	Corps des Mines Fellowship, Ecole des Mines de Paris (France).
1998	Prix d'Option in Mechanics, Ecole Polytechnique (France).

AWARDS AND HONOURS TO PhD STUDENTS and Postdocs

2018	**Yi Man** UK Fluids Network PhD Thesis prize
2016	**Thomas Montenegro-Johnson**, Silver Medal, SET for BRITAIN poster, Maths
2015	**Lyndon Koens**, BMC/BAMC Student Talk Award
2014	**Lyndon Koens**, paper selected as Highlight of 2014 for *Physical Biology*
2014	**Emily Riley**, paper selected as Highlight of 2014 for *EPL*
2013	**On Shun Pak**, Siebel Scholar in Bioengineering, Siebel Foundation
2013	**On Shun Pak**, Outstanding Graduate Student Award, Dept. of MAE, UC San Diego
2010	**On Shun Pak**, Croucher Foundation Scholarship

UNIVERSITY TEACHING

University of Cambridge

Michaelmas 20	Part III, N*on-Newtonian Fluid Mechanics* (graduate course)
Michaelmas 19	Part III, N*on-Newtonian Fluid Mechanics* (graduate course)
Lent 19	Part III, *Active Biological Fluids* (graduate course)
Michaelmas 16	Part III *Biological Physics and Complex Fluids* (graduate course)
Lent 16	Part III, *Active Biological Fluids* (graduate course)
Michaelmas 15	Part II, *Fluid Dynamics* (undergraduate course)
Lent 15	Part III, *Complex and Biological Fluids* (graduate course)
Michaelmas 14	Part II, *Fluid Dynamics* (undergraduate course)
Lent 14	Part III, *Complex and Biological Fluids* (graduate course)

University of California, San Diego

Spring 13	MAE 108, *Probability and Statistical Methods for Engineers* (undergraduate course)
Spring 12	MAE 108, *Probability and Statistical Methods for Engineers* (undergraduate course)
Winter 12	MAE 207, *Microfluidics* (graduate course)
Fall 11	MAE 294A, *Introduction to Applied Mathematics I* (graduate course)
Winter 11	MAE 210b, *Fluid Mechanics II* (graduate course)
Winter 11	MAE 108, *Probability and Statistical Methods for Engineers* (undergraduate course)
Fall 10	MAE 294A, *Introduction to Applied Mathematics I* (graduate course)
Spring 10	MAE 101B, *Advanced Fluid Mechanics* (undergraduate course)
Winter 10	MAE 108, *Probability and Statistical Methods for Engineers* (undergraduate course)

Fall 09 MAE 294A, *Introduction to Applied Mathematics I* (graduate course)
Winter 09 MAE 207, *Fluid Mechanics of The Cell* (graduate course)
Fall 08 MAE 105, *Introduction to Mathematical Physics* (undergraduate course)
Spring 08 MAE 207, *Biological Fluid Mechanics* (graduate course)
Winter 08 MAE 210b, *Fluid Mechanics II* (graduate course)

Massachusetts Institute of Technology
Spring 07 18.358, *Hydrodynamic Stability and Turbulence* (graduate course)
Fall 06 18.075, *Advanced Calculus for Engineers* (graduate course)

Harvard University
Spring 05 AM 105b, *Differential Equations* (undergraduate course, co-lecturer)

OTHER TEACHING

Summer 19 9th Complex Motion in Fluids Summer School, Gilleleje, Denmark: *Mathematical modelling*
Summer 19 Advanced School in Soft Condensed Matter, Cambridge, UK: *Active motion at low Reynolds numbers*
Winter 19 Motile Active Matter Winter School, Julich, Germany: *The hydrodynamics of bacteria*
Summer 16 Active Complex Matter School, Cargese, France: *Theoretical description of micro-swimmers*
Summer 16 CISM-IUTAM School on Biological and Bio-inspired Fluid Mechanics, Udine, Italy: *Complex Fluids*
Summer 16 7th Complex Motion in Fluids Summer School, Zwanenhof, Netherlands: *Swimming + Filaments*
Summer 15 6th Complex Motion in Fluids Summer School, Krogerup Højskole, Denmark: *Biofluids*
Spring 15 Doctoral Program in Physics, EPFL, Switzerland: *Active Biological Fluids*
Summer 13 5th Complex Motion in Fluids Summer School, Krogerup Højskole, Denmark: *Biolocomotion*
Summer 12 Les Houches Summer School Soft Interfaces '12, France: *Fluid Mechanics of Biological Locomotion*
Summer 09 Softflow'09 Summer School, Cargese, France: *The hydrodynamics of swimming microorganisms*
Summer 08 UMass Complex Fluids Summer School: *Low Reynolds Number Hydrodynamics*

BOOKS

2. **Fluid Mechanics (A Very Short Introduction)**
   Eric Lauga, *Oxford University Press*, 2022 (forthcoming).
1. **The Fluid Dynamics of Cell Motility**
   Eric Lauga, *Cambridge University Press*, 2020.

JOURNAL PUBLICATIONS (http://www.damtp.cam.ac.uk/user/lauga/publications.html)

2021

195. **The Bank of Swimming Organisms at the Micron scale (BOSO-Micro)**
M. F. V. Rodrigues, M. Lisicki and E. Lauga, *PLoS ONE*, 2021 (to appear)
194. **Direct measurement of unsteady microscale Stokes flow using optically driven microspheres**
N. Bruot, P. Cicuta, H. Gadelha, R. E. Goldstein, J. Kotar, E. Lauga and F. Nadal, *Phys. Rev. Fluids*, 2021 (to appear)
193. **Editorial: On Transition (in Physical Review Fluids leadership)**
B. McKeon and E. Lauga, Phys. Rev. Fluids, 6, 040001, 2021.
192. **Rebound and scattering of motile Chlamydomonas algae in confined chambers**
A. Théry, Y. Wang, M. Dvoriashyna, C. Eloy, F. Elias and E. Lauga, *Soft Matter*, 2021 (to appear)
191. **Front-back asymmetry controls the impact of viscoelasticity on helical swimming**
V. Angeles, F. A. Godinez, J. A. Puente-Velazquez, R. Mendez, E. Lauga and R. Zenit, *Phys. Rev. Fluids*, 2021 (to appear).
190. **Geometric phase methods with Stokes theorem for a general viscous swimmer**
L. Koens and E. Lauga, *J. Fluid Mech.*, 2021 (to appear).
189. **Energetics of synchronisation for model flagella and cilia**
W. Liao and E. Lauga, *Phys. Rev. E*, 2021 (to appear)

188. **Zigzag instability of biased pusher swimmers**
E. Lauga, T. N. Dang and T. Ishikawa, *Europhys. Lett.*, 2021 (to appear).

187. **Hydrodynamic synchronisation in strong confinement**
I. Tanasijevic and E. Lauga, Phys. Rev. E, 103, 022403, 2021.

186. **The fluid dynamics of collective vortex structures of plant-animal worms**
G. T. Fortune, A. Worley, A. Sendova-Franks, N. Franks, K. C. Leptos, E. Lauga and R. E. Goldstein, *J. Fluid Mech.*, 2021 (to appear)

185. **Swirling instability of the microtubule cytoskeleton**
D. B. Stein, G.De Canio, E. Lauga, M. J. Shelley and R. E. Goldstein, *Phys. Rev. Lett.*, **126**, 028103, 2021. Synopsis in *Physics*, **14**, s1, 2021.

2020

184. **Cilia density and flow velocity affect alignment of motile cilia from brain cells**
N. Pellicciotta, D. Das, J. Kotar, M. Faucourt, N. Spassky, E. Lauga and P. Cicuta, *J. Exp. Biol.*, **223**, jeb229310, 2020.

183. **Direct vs indirect hydrodynamic interactions during bundle formation of bacterial flagella**
A. Chamolly and E. Lauga, *Phys. Rev. Fluids*, **5**, 123102, 2020.

182. **Travelling waves are hydrodynamically optimal for long-wavelength flagella**
E. Lauga, *Phys. Rev. Fluids*, 5, **123101**, 2020.

181. **A hydrodynamic model for Spiroplasma motility**
C. Esparza-López and E. Lauga, *Phys. Rev. Fluids*, **5**, 093102, 2020.

180. **Self-organisation and convection of confined magnetotactic bacteria**
A. Théry, L. Le Nagard, J.-C. Ono-dit-Biot, C. Fradin, K. Dalnoki-Veress and E. Lauga, *Sci. Rep.*, **10**, 13578, 2020.

179. **Stokes flow due to point torques and sources in a spherical geometry**
A. Chamolly and E. Lauga, *Phys. Rev. Fluids*, **5**, 074202, 2020.

178. **Collective stiffening of soft hair assemblies**
J.-B. Thomazo, E. Lauga, B. Le Reverend, E. Wandersman and A. Prevost, *Phys. Rev. E*, **102**, 010602(R), 2020.

177. **Geometrical constraints on the tangling of bacterial flagellar filaments**
M. Tătulea-Codrean and E. Lauga, *Sci. Rep.*, 10, 8406, 2020.

176. **Selectively controlled magnetic microrobots with multiple helices**
J. Giltinan, P. Katsamba, W. Wang, E. Lauga and M. Sitti, *Appl. Phys. Lett.*, **116**, 134101, 2020.

175. **Light-switchable propulsion of active particles with reversible interactions**
H. R. Vutukuri, M. Lisicki, E. Lauga and J. Vermant, *Nature Comm.*, **11**, 2628, 2020.

174. **Irreversible hydrodynamic trapping by surface rollers**
A. Chamolly, E. Lauga and S. Tottori, *Soft Matt.*, **16**, 2611-2620, 2020.

173. **Spontaneous onset of convection in a uniform phoretic channel**
S. Michelin, S. Game, E. Lauga, E. Keaveny and D. Papageorgiou, *Soft Matt.*, **16**, 1259 - 1269, 2020.

172. **Active rotational dynamics of a self-diffusiophoretic colloidal motor**
S. Y. Reigh, M.-J. Huang, H. Lowen, E. Lauga and R. Kapral, *Soft Matt.*, **16**, 1236 - 1245, 2020.

171. **The 2020 Motile Active Matter Roadmap**
G. Gompper, R. Winkler, T. Speck, A. Solon, C. Nardini, F. Peruani, H. Löwen, R. Golestanian, U. Kaupp, L. Alvarez, T. Kiørboe, E. Lauga, W. Poon, A. De Simone, F. Cichos, A. Fischer, S. Muiños-Landin, N. Söker, R. Kapral, P. Gaspard, M. Ripoll, F. Sagues, J. Yeomans, A. Doostmohammadi, I. Aranson, C. Bechinger, H. Stark, C. Hemelrijk, F. Nedelec, T. Sarkar, G. Duclos, T. Aryaksama, M. Lacroix, V. Yashunsky, P. Silberzan, M. Arroyo and S. Kale,
J. Phys.: Condens. Matter, **32**, 193001, 2020.

2019

170. **Shape-programmed 3-D printed swimming microtori for the transport of passive and active agents**
R. Baker, T. Montenegro-Johnson, A. D. Sediako, M. J. Thomson, A. Sen, E. Lauga and I. S. Aronson, *Nature Comm.*, **10**, 4932, 2019

169. **Transition to bound states for bacteria swimming near surfaces**
D. Das and E. Lauga, *Phys. Rev. E*, **100**, 043117, 2019

168. **A light-driven microgel rotor**
H. Zhang, L. Koens, E. Lauga, A. Mourran and M. Möller, *Small*, **15**, 1903379, 2019 -

167. **Viscoelastic propulsion of a rotating dumbbell**
J. A. Puente-Velazquez, F. A. Godinez, E. Lauga and R. Zenit, *Microfluidics Nanofluidics*, **23**, 108, 2019

166. **Method of regularized stokeslets: Flow analysis and improvement of convergence**
B. Zhao, E. Lauga and L. Koens, *Phys. Rev. Fluids*, **4**, 084104, 2019

165. **Universal optimal geometry of minimal phoretic pumps**
S. Michelin and E. Lauga, *Sci. Rep.*, **9**, 10788, 2019

164. **Swimming eukaryotic microorganisms exhibit a universal speed distribution**
M Lisicki, M. F. V. Rodrigues, R. E. Goldstein and E. Lauga, *eLife*, **8**, e44907, 2019

163. **Stochastic dynamics of dissolving active particles**
A. Chamolly and E. Lauga, *Eur. Phys. J. E*, **42**, 88, 2019

162. **Active particles powered by Quincke rotation in a bulk fluid**
D. Das and E. Lauga, *Phys. Rev. Lett.*, **122**, 194503, 2019

161. **The N-flagella problem: Elastohydrodynamic motility transition of multi-flagellated bacteria**
K. Ishimoto and E. Lauga, *Proc. Roy. Soc. A*, **475**, 20180690, 2019

160. **Propulsion by stiff elastic filaments in viscous fluids**
P. Katsamba and E. Lauga, *Phys. Rev. E.*, **99**, 053107, 2019

159. **Self-organization of swimmers drives long-range fluid transport in bacterial colonies**
H. Xu, J. Dauparas, D. Das, E. Lauga and Y. Wu, *Nature Comm.*, **10**, 1792, 2019

158. **A stochastic model for bacteria-driven micro-swimmers**
C. Esparza-López, A. Thery and E. Lauga, *Soft Matter*, **15**, 2605-2616, 2019

157. **The near and far of a pair of magnetic capillary disks**
L. Koens, W. Wang, M. Sitti and E. Lauga, *Soft Matter*, **15**, 1497-1507, 2019

156. **Hydrodynamics of bacteriophage migration along bacterial flagella**
P. Katsamba and E. Lauga, *Phys. Rev. Fluids*, **4**, 013101, 2019

155. **Viscous growth and rebound of a bubble near a rigid surface**
S. Michelin, G. Gallino, F. Gallaire and E. Lauga, *J. Fluid Mech.*, **860**, 172–199, 2019

154. **Adaptive locomotion of artificial microswimmers**
H. Huang, F. E. Uslu, P. Katsamba, Q. Chao, E. Lauga, M. S. Sakar and B. J. Nelson, *Science Adv.*, **5**, eaau1532, 2019

2018

153. **The swimming of a deforming helix**
L. Koens, H. Zhang, M. Moeller, A. Mourran and E. Lauga, *Eur. Phys. J. E*, **41**, 119, 2018

152. **Artificial chemotaxis of phoretic swimmers: Instantaneous and long-time behaviour**
M. Tătulea-Codrean and E. Lauga, *J. Fluid Mech.*, **856**, 921–957, 2018

151. **Swimming of peritrichous bacteria is enabled by an elastohydrodynamic instability**
E. E. Riley, D. Das and E. Lauga, *Sci. Rep.*, **8**, 10728, 2018

150. **The boundary integral formulation of Stokes flows includes slender-body theory**
L. Koens and E. Lauga, *J. Fluid Mech.*, **850**, R1, 2018

149. **Computing the motor torque of** *Escherichia coli*
D. Das and E. Lauga, *Soft Matter*, **14**, 5955-5967, 2018

148. **Physics of bubble-propelled microrockets**
G. Gallino, F. Gallaire, E. Lauga and S. Michelin, *Adv. Func. Mat.*, **28**, 1800686, 2018

147. **Leading-order Stokes flows near a corner**
J. Dauparas and E. Lauga, *IMA J. Appl. Math.*, **83**, 590–633, 2018

146. **Autophoretic motion in three dimensions**
M. Lisicki, S. Y. Reigh and E. Lauga, *Soft Matter*, **14**, 3304-3314, 2018

145. **Collective dissolution of microbubbles**
S. Michelin, E. Guerin and E. Lauga, *Phys. Rev. Fluids*, **3**, 043601, 2018

144. **Helical micropumps near surfaces**
J. Dauparas, D. Das and E. Lauga, *Biomicrofluidics*, **12**, 014108, 2018

2017

143. **Bundling of elastic filaments induced by hydrodynamic interactions**
Y. Man, W. Page, R. Poole and E. Lauga, *Phys. Rev. Fluids*, **2**, 123101, 2017.

142. **Spontaneous oscillations of elastic filaments induced by molecular motors**
G. DeCanio, E. Lauga and R. E. Goldstein, *J. Roy. Soc. Interface*, **14**, 20170491, 2017.

141. **Active particles in periodic lattices**
A. Chamolly, T. Ishikawa and E. Lauga, *New J. Phys.*, **19**, 115001, 2017.

140. **Two-fluid model for locomotion under self-confinement**
S. Y. Reigh and E. Lauga, *Phys. Rev. Fluids*, **2**, 093101, 2017.

139. **Analytical solutions to slender-ribbon theory**
L. Koens and E. Lauga, *Phys. Rev. Fluids*, **2**, 084101, 2017.

138. **Empirical resistive-force theory for slender biological filaments in shear-thinning fluids**
E. E. Riley and E. Lauga, *Phys. Rev. E*, **95**, 062416, 2017.

137. **Bubble-based acoustic micropropulsors: active surfaces and mixers**
N. Bertin, T. Spelman, T. Combriat, H. Hue, O. Stéphan, E. Lauga and P. Marmottant, *Lab Chip*, **17**, 1515, 2017.

136. **The non-Gaussian tops and tails of diffusing boomerangs**
L. Koens, M. Lisicki and E. Lauga, *Soft Matter*, **13**, 2977-2982, 2017.

135. **Swimming with a cage: Low-Reynolds-number locomotion inside a droplet**
S. Y. Reigh, L. Zhu, F. Gallaire and E. Lauga, *Soft Matter*, **13**, 3161, 2017.

134. **Autophoretic flow on a torus**
L. C. Schmieding, E. Lauga and T. D. Montenegro-Johnson, *Phys. Rev. Fluids*, **2**, 034201, 2017.

133. **Geometric tuning of self-propulsion for Janus catalytic particles**
S. Michelin and E. Lauga, *Sci. Rep.*, **7**, 42264, 2017.

132. **Arbitrary axisymmetric steady streaming: Flow, force and propulsion**
T. Spelman and E. Lauga, *J. Eng. Math*, **105**, 31-65, 2017.

2016

131. **Clustering instability of focused swimmers**
F. Nadal and E. Lauga, *Europhys. Lett.*, **116**, 64004, 2016.

130. **Helical propulsion in shear-thinning fluids**
S. Gomez, F. Godinez, E. Lauga and R. Zenit, *J. Fluid Mech.*, **812**, R3, 2016.

129. **Can phoretic particles swim in two dimensions?**
D. Sondak, C. Hawley, S. Heng, R. Vinsonhaler, E. Lauga and J. L. Thiffeault, *Phys. Rev. E*, **94**, 062606, 2016.

128. **Microscale flow dynamics of ribbons and sheets**
T. Montenegro-Johnson, L. Koens and E. Lauga, *Soft Matter*, **13**, 546, 2016.

127. **Hydrodynamic interactions between nearby slender filaments**
Y. Man, L. Koens and E. Lauga, *Europhys. Lett.*, **116**, 24002, 2016.

126. **Elastohydrodynamic synchronization of adjacent beating flagella**
R. E. Goldstein, E. Lauga, A. I. Pesci and M. R. E. Proctor, *Phys. Rev. Fluids*, **1**, 073201, 2016.

125. **Stresslets induced by active swimmers**
E. Lauga and S. Michelin, *Phys. Rev. Lett.*, **117**, 148001, 2016.

124. **Sensing in the mouth: A model for filiform papillae as strain amplifiers**
E. Lauga, C. J. Pipe and B. Le Reverend, *Front. Phys.*, **4**, 35, 2016.

123. **Flow analysis of the low-Reynolds number swimmer C. elegans**
T. Montenegro-Johnson, D. Gagnon, P. Arratia and E. Lauga, *Phys. Rev. Fluids*, **1**, 053202, 2016.

122. **Flagellar flows around bacterial swarms**
J. Dauparas and E. Lauga, *Phys. Rev. Fluids*, **1**, 043202, 2016.

121. **Phoretic flow induced by asymmetric confinement**
M. Lisicki, S. Michelin and E. Lauga, *J. Fluid Mech.*, **799**, R5, 2016.

120. **Micro-tug-of-war: A selective control mechanism for magnetic swimmers**
P. Katsamba and E. Lauga, *Phys. Rev. Applied*, **5**, 064019, 2016.

119. **Rotation of slender swimmers in isotropic-drag media**
L. Koens and E. Lauga, *Phys. Rev. E*, **93**, 043125, 2016.

118. **A squirmer across Reynolds numbers**
N. Chisholm, D. Legendre, E. Lauga and A. Khair, *J. Fluid Mech*, **796**, 233-256 2016.

117. **Small acoustically-forced symmetric bodies in viscous fluids**
F. Nadal and E. Lauga, *J. Acoust. Soc. Am.*, **139**, 1081-1092, 2016.

116. **Structured light enables biomimetic swimming and versatile locomotion of photoresponsive soft microrobots**
S. Palagi, A. Mark, S.-Y. Reigh, K. Melde, T. Q., H. Zeng, C. Parmeggiani, D. Martella, A. Sanchez Castillo, N. Kapernaum, F. Giesselmann, D. Wiersma, E. Lauga and P. Fischer, *Nature Mat.*, **15**, 647-654, 2016.

115. **Slender-ribbon theory**
L. Koens and E. Lauga, *Phys. Fluids*, **28**, 013101, 2016.

114. **Bacterial hydrodynamics**
E. Lauga, *Annu. Rev. Fluid Mech.*, **48**, 105-130, 2016.

2015

113. **Propulsion of bubble-based acoustic microswimmers**
N. Bertin, T. A. Spelman, O. Stephan, L. Gredy, M. Bouriau, E. Lauga and P. Marmottant, *Phys. Rev. Applied*, **4**, 064012, 2015.

112. **A regularised singularity approach to phoretic problems**
T. D. Montenegro-Johnson, S. Michelin and E. Lauga, *Eur. Phys. J. E*, **38**, 139, 2015.

111. **A reciprocal theorem for boundary-driven channel flows**
S. Michelin and E. Lauga, *Phys. Fluids*, **27**, 111701, 2015.

110. **Small-amplitude swimmers can self-propel faster in viscoelastic fluids**
E. E. Riley and E. Lauga, *J. Theor. Biol.*, **382**, 345–355, 2015.

109. **Phase-separation models for swimming enhancement in complex fluids**
Y. Man and E. Lauga, *Phys. Rev. E*, **92**, 023004, 2015.

108. **Non-decaying hydrodynamic interactions along narrow channels**
K. Misiunas, S. Pagliara, E. Lauga, J. R. Lister, and U. F. Keyser, *Phys. Rev. Lett.*, **115**, 038301, 2015.

107. **Geometric pumping in autophoretic channels**
S. Michelin T. D. Montenegro-Johnson, G. De Canio, N. Lobato-Dauzier and E. Lauga, *Soft Matter*, **11**, 5804-5811, 2015.

106. **Complex fluids affect low-Reynolds number locomotion in a kinematic-dependent manner**
F. A. Godinez, R. Zenit, and E. Lauga, *Exp. Fluids*, **56**, 97, 2015.

105. **Geometric capture and escape of a microswimmer colliding with an obstacle**
S. E. Spagnolie, G. R. Moreno-Flores, D. Bartolo and E. Lauga, *Soft Matter*, **11**, 3396 - 3411, 2015.

104. **Autophoretic locomotion from geometric asymmetry**
S. Michelin and E. Lauga, *Eur. Phys. J. E*, **38**, 7, 2015.

103. **The bearable gooeyness of swimming**
E. Lauga, *J. Fluid Mech.*, **762**, 1-4, 2015.

102. **The other optimal Stokes drag profile**
T. D. Montenegro-Johnson and E. Lauga, *J. Fluid Mech.*, **762**, R3, 2015.

2014

101. **The passive diffusion of Leptospira interrogans**
L. Koens and E. Lauga, *Phys. Biol.*, **11**, 066008, 2014.
Selected as *Physical Biology Highlights* of 2014.

100. **Enhanced active swimming in viscoelastic fluids**

E. E. Riley and E. Lauga, *Europhys. Lett.*, **108**, 34003, 2014.

99. **Locomotion in complex fluids: Integral theorems**
E. Lauga, *Phys. Fluids*, **26**, 081902, 2014.
98. **Theory of Locomotion through complex fluids**
G. J. Elfring and E. Lauga, Chapter in *Complex Fluids in Biological Systems,* S. E. Spagnolie (Ed.) Springer, 2014.
97. **Sedimentation of a rotating sphere in a power-law fluid**
F. A. Godinez, E. de la Calleja, E. Lauga, and R. Zenit, *J. Non-Newt. Fluid Mech.*, **213**, 27-30, 2014.
96. **Theoretical models in low-Reynolds number locomotion**
O. S. Pak and E. Lauga, Chapter in *Low-Reynolds-Number Flows: Fluid-Structure Interactions*
C. Duprat and H. A. Stone (Eds.), Royal Society of Chemistry Soft Matter Series.
95. **Asymmetric steady streaming leads to acoustic propulsion of rigid bodies**
F. Nadal and E. Lauga, *Phys. Fluids*, **26**, 082001, 2014.
94. **Rotational propulsion enabled by inertia**
F. Nadal, O. S. Pak, L. Zhu, L. Brandt, and E. Lauga, *Eur. Phys. J. E*, **37**, 60, 2014.
93. **Mixing by microorganisms in stratified fluids**
G. Wagner, W. R. Young, and E. Lauga, *J. Marine Res.*, **72**, 47-72, 2014.
92. **Dynamics of swimming bacteria at complex interfaces**
D. Lopez and E. Lauga, *Phys. Fluids*, **26**, 071902, 2014.
Paper winner of the 2015 François Frenkiel Award for Fluid Mechanics, American Physical Society.
91. **The optimal swimming sheet**
T. D. Montenegro-Johnson and E. Lauga, *Phys. Rev. E*, **89**, 060701(R), 2014.
90. **Generalized squirming motion of a sphere**
O. S. Pak and E. Lauga, *J. Eng. Math.*, **88**, 1-28, 2014.
89. **Phoretic self-propulsion at finite Péclet numbers**
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L. Was and E. Lauga, *Bioinspir. Biomim.*, **9**, 016001, 2014.

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82. **Waving transport and propulsion in a generalized Newtonian fluid**
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80. **Spontaneous autophoretic motion of isotropic particles**
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79. **Low-Reynolds number swimming in a capillary tube**
L. Zhu, E. Lauga and L. Brandt, *J. Fluid Mech.*, **726**, 285-311, 2013.
78. **An introduction to the hydrodynamics of locomotion on small scales**
E. Lauga, Les Houches 2012 Summer School Proceedings, Oxford University Press, 2013.
77. **Fluid elasticity increases the locomotion of flexible swimmers**
J. Espinosa-Garcia, E. Lauga, and R. Zenit, *Phys. Fluids,* **25**, 031701, 2013.

76. **Crawling scallop: Friction-based locomotion with one degree of freedom**
G. Wagner and E. Lauga, *J. Theor. Biol.*, **324**, 42-51, 2013.

75. **Hydrodynamics of confined active fluids**
T. Brotto, J.-B. Caussin, E. Lauga, and D. Bartolo, *Phys. Rev. Lett.* **110**, 038101, 2013.

74. **Elastocapillary self-folding: buckling, wrinkling, and collapse of floating filaments**
A. A. Evans, S. E. Spagnolie, D. Bartolo, and E. Lauga, *Soft Matter* **9**, 1711-1720, 2013.

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2012

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E. Lauga, and R. E. Goldstein, *Phys. Today*, **65** (9), 30, 2012.

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N. Desreumaux, N. Florent, E. Lauga, and D. Bartolo, *Eur. Phys. J. E*, **35**, 68, 2012.

69. **Viscous Marangoni propulsion**
E. Lauga and A. M. J. Davis, *J. Fluid Mech.*, **705**, 120–133, 2012.

68. **Kinematics of the most efficient cilium**
C. Eloy and E. Lauga, *Phys. Rev. Lett.,* **109**, 038101, 2012.

67. **Buckling instability of squeezed droplets**
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65. **Hydrodynamics of self-propulsion near a boundary: predictions and accuracy of far-field approximations**
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64. **Hydrodynamics of the double-wave structure of insect spermatozoa flagella**
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56. **High-speed propulsion of flexible magnetic nanowire motors: theory and experiments**
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G. Elfring and E. Lauga, *J. Fluid Mech*, **674**, 163–173, 2011.

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E. Lauga, *Soft Matter*, **7**, 3060 - 3065, 2011.

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38. **Pumping by flapping in a viscoelastic fluid**
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37. **Two-dimensional flagellar synchronization in viscoelastic fluids**
G. Elfring, O. S. Pak, and E. Lauga, *J. Fluid Mech.*, **646**, 505-515, 2010.

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35. **Shaking-induced motility in suspensions of soft active particles**
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34. **The transient swimming of a waving sheet**
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33. **The friction of a mesh-like super-hydrophobic surface**
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E. Lauga and T. R. Powers, *Rep. Prog. Phys.*, **72**, 096601, 2009.

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G. Elfring and E. Lauga, *Phys. Rev. Lett.*, **103**, 088101, 2009. *(Editors' Suggestion)*
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30. **Influence of slip on the dynamics of two-dimensional wakes**
D. Legendre, E. Lauga and J. Magnaudet, *J. Fluid Mech*, **633**, 437-447, 2009.

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R. L. Speth and E. Lauga, *New J. Phys.*, **11**, 075024, 2009.

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E. Lauga, *Europhys. Lett.*, **86**, 64001, 2009.

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D. Gonzalez-Rodriguez and E. Lauga, *J. Phys.: Condens. Matter* **21**, 204103, 2009.
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A. M. J. Davis and E. Lauga, *Phys. Fluids*, **21**, 011701, 2009.

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T. Normand and E. Lauga, *Phys. Rev. E*, **78**, 061907, 2008.
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E. Lauga, M. P. Brenner and H. A. Stone
in *Handbook of Experimental Fluid Dynamics*, C. Tropea, A. Yarin, J. F. Foss (Eds.), Springer, 2007.
ISBN: 978-3-540-25141-5 (cond-mat/0501557).

18 **Propulsion in a viscoelastic fluid**
E. Lauga, *Phys. Fluids*, **19**, 083104, 2007.
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E. Lauga and A. E. Hosoi, *Phys. Fluids*, **18**, 113102, 2006.
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E. Lauga, W. R. DiLuzio, G. M. Whitesides and H. A. Stone, *Biophys. J.*, **90**, 400-412, 2006.

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10 **A note on the stability of slip channel flows**
E. Lauga and C. Cossu, *Phys. Fluids* **17**, 088106, 2005.

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E. Lauga and M. P. Brenner, *Phys. Rev. Lett.* **93**, 238301, 2004.
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6 **Performance of a linear robust control strategy on a nonlinear model of spatially-developing flows**
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5 **Three-dimensional flows in slowly-varying planar geometries**
E. Lauga, A. D. Stroock and H. A. Stone, *Phys. Fluids* **16**, 3051-3062, 2004.

2003

4 **Effective slip in pressure-driven Stokes flow**
E. Lauga and H. A. Stone, *J. Fluid Mech.* **489**, 55-77, 2003.

3 **The decay of stabilizability with Reynolds number in a linear model of spatially developing flows**
E. Lauga and T. R. Bewley, *Proc. Roy. Soc. A* **459**, 2077-2095, 2003.

2002

2 **Modern control of linear global instability in a cylinder wake model**
E. Lauga and T. R. Bewley, *Int. J. Heat and Fluid Flow* **23**, 671-677, 2002.

1999

1 **Vortices in rotating systems: centrifugal, elliptic and hyperbolic type instabilities**
D. Sipp, E. Lauga and L. Jacquin, *Phys. Fluids*, **11**, 3716-3728, 1999.

INVITED PRESENTATIONS

2021 Applied Mathematics and Computational Science Seminar, University of Pennsylvania, PA (Virtual)
Invited talk, APS March Meeting, Active Matter mini-sympoosium (Virtual)
Department of Physics Colloquium, MacMaster University, Hamilton, Ontario (Virtual)
GALCIT Colloquium, California Institute of Technology, CA (Virtual)

2020 UK Biofluids Webinar, UK Fluid Network (Virtual)
Archimedeans, Faculty of Mathematics, University of Cambridge

2019 Third Biologically Active Fluids Conference, UK Fluids Network, Warwick University, UK.
Fluids & Elasticity '19 Conference, Malaga, Spain.
Institut de Mécanique des Fluides de Toulouse, Université Paul Sabatier, Toulouse, France.
Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.
Trinity Mathematical Society, Trinity College, Cambridge, UK.
Department of Physics, University of Warwick, Coventry, UK.

2018 Plenary talk, 12th Euromech Fluid Mechanics Conference, Vienna, Austria.
School of Mechanical, Electrical and Manufacturing Eng., Loughborough University, Loughborough, UK.
School of Mathematics, University of Birmingham, UK.
Physics Department, Danish Technical University, Denmark.
Mathematical Institute, Oxford University, Oxford, UK.
Laboratoire Jean Perrin, Sorbonne Universités, Paris, France.

2017 Inaugural Biologically Active Fluids Conference, UK Fluids Network, University of Birmingham, UK.
Flow 17, Fundamentals and Applications of micro- and nanofluidics Conference, Paris, France.
Department of Engineering, Fluid Mechanics, University of Cambridge, UK.
Engineering and Environment, University of Southampton, Southampton, UK.
School of Mathematics, Cardiff University, Cardiff, UK.
Centre de Recherche Interdisciplinaire, Paris, France.
School of Mathematics, University of East Anglia, Norwich, UK.

2016 Stuttgart, Germany.
International Microswimmers Conference, Bonn, Germany.
Department of Chemical Engineering, Imperial College, London, UK.
Department of Mathematical Sciences, University of Liverpool, UK.
Trinity College, Cambridge, UK.
Euromech Fluid Mechanics Conference, Sevilla, Spain.
Microorganisms in Turbulent Flows workshop, Lorentz Institute, Leiden, Netherlands.
Gulliver, ESPCI, France.

2015 Frenkiel Award Lecture, 68th Meeting of the APS/DFD, Boston, MA.
Nestlé Research Center, Lausanne, Switzerland.
Department of Mechanical Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.
Fluids & Elasticity '15 Conference, Biarritz, France.
Département de Mécanique, Ecole Polytechnique, Palaiseau, France.
School of Mathematics, University of Bristol, UK.
LadHyX, Laboratoire d'Hydrodynamique, Ecole Polytechnique, Palaiseau, France.
IOP ``The Physics of Microorganisms" Conference, London, UK.
Trinity Mathematical Society, Trinity College, Cambridge, UK.
Belfer Symposium on Microswimmers, Technion, Israel.

2014 Department of Physics, University of Warwick, Coventry, UK.
Jülich Soft Matter Days 2014, Bad Honnef, Germany.
Liquids 2014, 9th Liquid Matter Conference, Lisbon, Portugal.
MNM 14, International Workshop on Micro- and Nanomachines, Hanover, Germany.
IRPHE, Institut de Recherche sur les Phénomènes Hors d'Equilibre, Marseille, France.
School of Mathematics and Statistics, University of Glasgow, UK.
Department of Mathematics, Imperial College London, UK.
British Applied Mathematics Colloquium, Cardiff, UK.

School of Mathematics, University of Manchester, UK.
Cambridge-Industry Fluid Dynamics Meeting, Trinity College, Cambridge, UK.
Department of Engineering, Micromechanics, University of Cambridge, UK.
Cavendish Physical Society, University of Cambridge, UK.

2013 Mathematical Institute, Oxford University, Oxford, UK.
Workshop on Mathematical Aspects of Fluid-structure Interactions, Institut Henri Poincaré, Paris, France.
Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK.
School of Physics and Astronomy, University of Edinburgh, UK.
John Blake's Career Celebration Meeting, School of Mathematics, University of Birmingham, UK.
Department of Mechanical and Aerospace Engineering, University of California, Irvine, CA.
Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA.
Department of Mathematics, University of Wisconsin, Madison, WI.

2012 Biocircuits Institute, University of California San Diego, La Jolla, CA.
Department of Structural Engineering, University of California San Diego, La Jolla, CA.
Department of Mathematics, University of California, Los Angeles, CA.
Departement de Physique, Ecole Normale Supérieure de Lyon, France.
Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK.
Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY.

2011 Department of Mechanical and Aerospace Engineering, University of California San Diego, La Jolla, CA.
Department of Mathematics, Duke University, Durham, NC.
Department of Mathematics, University of North Carolina, Chapel Hill, NC.
Euromech workshop 521 ``Biomedical Flows at Low Reynolds Numbers", ETH, Zurich, Switzerland.
BP Institute, University of Cambridge, UK.
Dept. of Applied and Computational Mathematics and Statistics, University of Notre Dame, South Bend, IN.
School of Chemical and Biomolecular Engineering, Cornell University, Ithaca, NY.

2010 Physico Chimie Curie, Institut Curie, Paris, France.
Laboratoire de Physique de la Matière Condensée et Nanostructures, Université de Lyon 1, France.
Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico.
Workshop on ``Individual and Collective Fluid Mechanics of Swimming Microorganisms", Glasgow, Scotland.
Institut Jean le Rond d'Alembert, Université Pierre et Marie Curie, Paris, France.
Institute for Mathematics and its Applications (IMA) Locomotion workshop, University of Minneapolis, MN.
Seventh "Frontiers in Applied and Computational Mathematics" conference (FACM'10), Newark, NJ.
Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, NM.
Department of Chemistry and Biochemistry, University of California, Los Angeles, CA.
Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA.
APS 2010 March Meeting, Focus session "Nonlinear Hydrodynamics of Swimming Cells", Portland, OR.
Nestlé Research Center, Lausanne, Switzerland.
Institute of Mechanical Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.
Department of Mathematics, University of California, Davis, CA.
"Small Scale Hydrodynamics" workshop at the Banff International Research Station (BIRS), AB, Canada.

2009 Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, CA.
The Courant Institute of Mathematical Sciences, New York University, New York, NY.
School of Engineering and Applied Sciences, Harvard University, Cambridge, MA.
Center for Interdisciplinary Research in Fluid Physics, University of California, Santa Barbara, CA.
Center for Nonlinear Dynamics, Department of Physics, University of Texas, Austin, TX.
PMMH Laboratory (Physique et Mécanique des Milieux Hétérogènes), ESPCI, Paris, France.
I2CAM workshop "Soft active materials: From granular rods to flocks to cells and tissues", Syracuse, NY.
SIAM Conference on Applications of Dynamical Systems, Snowbird, UT.
Department of Mathematics, University of Arizona, Tucson, AZ.
Department of Theoretical and Applied Mechanics, Cornell University, Ithaca, NY.
SIAM Conference on Computational Science and Engineering, Miami, FL.
Department of Mathematics, University of California Berkeley, Berkeley, CA.

2008 The Rudolf Peierls Centre for Theoretical Physics, University of Oxford, Oxford, UK.
Institut de Mécanique des Fluides de Toulouse, Université Paul Sabatier, Toulouse, France.
Mechanical Engineering, California Institute of Technology, Pasadena, CA.
Department of Mathematics, University of California Los Angeles, CA.
SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, PA.
Department of Physics, Princeton University, Princeton, NJ.
Department of Mathematics, Tulane University, New Orleans, LA.
APS 2008 March Meeting, Session "Locomotion in Complex Fuids", New Orleans, LA.

2007 Center for Theoretical Biological Physics, University of California San Diego, La Jolla, CA.
Novel Flows session, AIChE 2007 Annual Meeting, Salt Lake City, UT.
Day of Locomotion Workshop, Harvard University, Cambridge, MA.
Workshop on Microswimming and Bacterial Motility, Munich, Germany.
Department of Physics, University of Arizona, Tucson, AZ.
Department of Mechanical Engineering, M.I.T., Cambridge, MA.
Department of Mechanical and Aerospace Engineering, University of California San Diego, La Jolla, CA.
Department of Mathematics, University of California San Diego, La Jolla, CA.

2006 Courant Institute of Mathematical Sciences, New York University, New York, NY.
Acrivos Award Lecture, 59th Meeting of the APS/DFD, Tampa, FL.
Department of Engineering Science and Applied Mathematics, Northwestern University, Evanston, IL.
Department of Physics, Clark University, Worcester, MA.

2005 Institut de Mécanique des Fluides de Toulouse, Université Paul Sabatier, Toulouse, France.
Division of Engineering, Brown University, Providence, RI.
School of Mathematics, University of Bristol, UK.
Department of Mechanical Engineering, The City College of New York, New York, NY.
Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA.

2004 The James Franck Institute, The University of Chicago, Chicago, IL.
School of Chemical and Biomolecular Engineering, Cornell University, Ithaca, NY.
Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA.
CECAM Workshop on Dynamics of Fluids at Interfaces, Lyon, France.
AIMS 5th International Conference on Dynamical Systems and Differential Equations, Pomona, CA.
Department of Physics, Harvard University, Cambridge, MA.
LadHyX, Laboratoire d'Hydrodynamique, Ecole Polytechnique, Palaiseau, France.
IRPHE, Institut de Recherche sur les Phénomènes Hors d'Equilibre, Marseille, France.
IPGP, Institut de Physique du Globe de Paris, France.
School of Mathematical Sciences, University College Cork, Ireland.

2001-03 Harvard Applied Mechanics and Mathematics Study Group, Cambridge, MA.
Micro-Symposium on Fluid Flow Focusing and Microfluidics, Cambridge, MA.
Department of Fundamental and Experimental Aerodynamics, ONERA, Meudon, France.
LadHyX, Laboratoire d'Hydrodynamique, Ecole Polytechnique, Palaiseau, France.

CONTRIBUTED PRESENTATIONS

2020 73rd Meeting of the APS Division of Fluid Dynamics, Chicago (Virtual).

2019 8th International Symposium on Bifurcations and Instabilities in Fluid Dynamics, Limerick, Ireland.

2018 55th Annual Technical Meeting of the Society of Engineering Science, Madrid, Spain.

2010 2nd European Microfluidics Conference, Toulouse, France.
63rd Meeting of the APS Division of Fluid Dynamics, Long Beach, CA.

2009 Fluids and Elasticity '09 Conference, Carry-le-Rouet, France
APS 2009 March Meeting, Pittsburgh, PA.

2008 61st Meeting of the APS Division of Fluid Dynamics, San Antonio, TX.

BMES 2008 Annual Fall Meeting, St. Louis, MO.
7th Euromech Fluid Mechanics Conference, Manchester, UK (extended talk).
8th World Congress of Computational Mechanics (WCCM8), Venice, Italy.
APS 2008 March Meeting, New Orleans, LA.

2007 60th Meeting of the APS Division of Fluid Dynamics, Salt Lake City, UT.
APS 2007 March Meeting, Denver, CO.

2006 59th Meeting of the APS Division of Fluid Dynamics, Tampa, FL.
78th Annual Meeting of The Society of Rheology, Portland, ME (poster).
IPAM Workshop on Microfluidics Flows, UCLA, Los Angeles, CA (poster).
APS 2006 March Meeting, Baltimore, MD.
IPAM Workshop on Thin Films and Fluid Interfaces, Los Angeles, CA (poster).
Dynamics Days 2006, Bethesda, MD (poster).

2005 58th Meeting of the APS Division of Fluid Dynamics, Chicago, IL.
"Focusing Stresses in a Soft Interface" Workshop, Univerity of Chicago, Chicago, IL (poster).
Frontiers in Applied and Computational Mathematics 2005 (FACM'05), Newark, NJ (poster).
APS 2005 March Meeting, Los Angeles, CA.

2004 57th Meeting of the APS Division of Fluid Dynamics, Seatlle, WA.
AIChE 2004 Annual Meeting, Austin, TX.
21st Int. Congress on Theoretical and Applied Mechanics, Warsaw, Poland.

2003 56th Meeting of the APS Division of Fluid Dynamics, Meadowlands, NJ.
AIChE 2003 Annual Meeting, San Francisco, CA.
5th Euromech Fluid Mechanics Conference, Toulouse, France.

2002 55th Meeting of the APS Division of Fluid Dynamics, Dallas, TX.
AIChE 2002 Annual Meeting, Indianapolis, IN.

2001 54th Meeting of the APS Division of Fluid Dynamics, San Diego CA.
2nd International Symposium on Turbulence and Shear Flow Phenomena, Stockholm, Sweden.

2000 53rd Meeting of the APS Division of Fluid Dynamics, Washington DC.

PEER REVIEW

Funding

Agence Nationale de la Recherche (ANR, France),
Army Research Office (ARO, USA),
Engineering and Physical Sciences Research Council (EPSRC, UK),
European Research Council (ERC, EU),
Israel Science Foundation (ISF, Israel),
National Institute of Health (NIH, USA),
National Research Foundation (Singapore),
National Science Foundation (NSF, USA),
Nebraska Center for Energy Sciences Research Grants,
Netherlands Organisation for Scientific Research (NWO, NL),
Oxford Centre for Collaborative Applied Mathematics (OCCAM, UK),
Petroleum Research Fund (PRF, USA),
Tec 21 (Université de Grenoble, France).

Journals

Acta Mechanica, AIChE Journal, Advances in Mechanical Engineering, Advanced Theory and Simulations, American Journal of Physics, Applied Mathematics & Information Sciences, Applied Mathematical Modelling, Applied Physics Letters, Bioinspiration & Biomimetics, Biomechanics and Modeling in Mechanobiology, Biomedical Microdevices, Biomicrofluidics, BioNanoScience, Biophysical Journal, Biorheology, Bulletin of Mathematical Biology, Chinese Physics Letters, Comptes Rendus de Mécanique,

Computers and Fluids, Computer Methods in Biomechanics and Biomedical Engineering,
Computer Methods and Programs in Biomedicine, Cytoskeleton, eLife,
European Journal of Mechanics - B/Fluids, European Physical Journal E,
European Physical Journal Plus, Europhysics Letters, Experimental Thermal and Fluid Science,
Experiments in Fluids, Fluid Dynamics Research, HFSP Journal, IEEE Transactions on Nanotechnology,
IEEE Transactions on Robotics, Integrative and Comparative Biology, Integrative Biology, Interface Focus,
International Journal of Heat and Fluid Flow, International Journal of Heat and Mass Transfer,
International Journal of Modern Physics C,
International Journal for Numerical Methods in Biomedical Engineering,
International Journal of Solids and Structures, Journal of Applied Physics, Journal of Biological Physics,
Journal of Biomechanical Engineering, Journal of Chemical Physics, Journal of Computational Physics,
Journal of Engineering Mathematics, Journal of Engineering Mechanics,
Journal of Experimental Biology, Journal of Fluid Mechanics, Journal of Fluids Engineering,
Journal of Heat Transfer, Journal of Mathematical Biology, Journal of Micro-Bio Robotics,
Journal of Nanoparticle Research, Journal of non-Newtonian Fluid Mechanics, Journal of Physical Chemistry,
Journal of Physics A: Mathematical and Theoretical, Journal of Physics D: Applied Physics,
Journal of Physics: Condensed Matter, Journal of Plankton Research, Journal of the Royal Society: Interface,
Journal of Statistical Mechanics: Theory and Experiment, Journal of the Mechanics and Physics of Solids,
Journal of Theoretical Biology, Lab on a Chip, Langmuir, Materials Horizons, Mathematical Biosciences,
Mathematical Biosciences and Engineering, Mathematical Medicine and Biology,
Mathematical Methods in the Applied Sciences, Meccanica, Microfluidics and Nanofluidics, Micromachines,
Nanoletters, Nanoscale, Nature, Nature Communications, Nature Physics, Nature Materials,
New Journal of Physics, Nonlinearity, Philosophical Transactions of the Royal Society A, Physica A,
Physical Review Applied, Physical Review E, Physical Review Fluids, Physical Review Letters, Physica Scripta,
Physics Letters A, Physics of Fluids, Physical Biology, PLoS Computational Biology, PLoS ONE,
Proceedings of the National Academy of Sciences (PNAS), Proceedings of the Royal Society A,
Proceedings of the Royal Society B, Quarterly Journal of Mechanics and Applied Mathematics,
Rheologica Acta, Science, Science Advances, Science Robotics, Scientific Reports,
SIAM Journal on Applied Dynamical Systems, SIAM Journal of Applied Mathematics, Soft Matter,
Soft Robotics, The IMA Journal of Applied Mathematics, The Biological Bulletin, Transport in Porous Media.

Conferences

American Control Conference,
European Conference on Microfluidics.

GRANTS

2016-2021
ERC Consolidator — €2,000,000 — Principal Investigator
The Physical Mechanics of Swimming Bacteria

2013-2017
Marie-Curie CIG — €100,000 — Principal Investigator
SWIMSYNTHETIC: Physics of synthetic small-scale propulsion in complex fluids for biomedical applications

2008-2013
NSF CBET-0746285 — $404,748 — Principal Investigator
CAREER: Nonlinear and nonlocal phenomena in biological hydrodynamics

2006-2009
NSF CTS-0624830 — $399,144 — Principal Investigator (co-PIs: AE Hosoi & JMW Bush, MIT)
Life at the interface: Biolocomotion near boundaries

SERVICE

Editorial

since 2021	Lead Editor, *Physical Review Fluids*
2019	Guest editor, *Proceedings of the National Academy of Sciences of the USA (PNAS)*
2016-2021	Associate Editor, *Physical Review Fluids*
2011-2016	Associate Editor, *European Physical Journal E*
2009-2016	Associate Editor, *Journal of Fluids and Structures*
2013-2016	Associate Editor, *Physics of Fluids*
2008-2016	Moderator for "Fluid Dynamics" on the `arxiv.org` preprint server.
2010	Co-editor of special issue of *Experimental Mechanics* on locomotion.

PhD Committees and Vivas

Edward Beaty, DAMTP, University of Cambridge – First year viva, November 2020.
Simon Schoeller, Imperial College London – PhD Viva, June 2019.
Simon Game, Imperial College London – PhD Viva, October 2018.
James Munro, DAMTP, University of Cambridge – PhD Viva, September 2018.
Julia Dogler, Technical University of Denmark – Defended PhD March 2018.
Jannes Gladrow, Cavendish Laboratory, Cambridge – First year viva, September 2016.
Yixin Wan, DAMTP, University of Cambridge – PhD Viva, September 2014.
Finn Box, School of Physics and Astronomy, University of Manchester – PhD Viva, March 2014.
Hugh Lund, DAMTP, University of Cambridge – PhD Viva, February 2014.
Nicolas Bruot, Cavendish Laboratory, University of Cambridge – PhD Viva, October 2013.
Thimothy Banham, Department of Mathematics, University of California San Diego – Defended June 2013.
Matthew Smith, Department of Structural Engineering, UC San Diego – Defended March 2013.
Bishakhdatta Gayen, Department of MAE, UC San Diego – Defended February 2012.
Kourosh Shoele, Department of Structural Engineering, UC San Diego – Defended PhD June 2011.
Roseanna Zia, Department of Mechanical Engineering, Caltech – Defended May 2011.
Zhangli Peng, Department of Structural Engineering, UC San Diego – Defended March 2011.
Ahsan Samiee, Department of MAE, UC San Diego – Defended December 2010.
Baldomero Alonso-Latorre, Department of MAE, UC San Diego – Defended November 2010.
Jared Barber, Dept. of Mathematics, University of Arizona (external reviewer) – Defended June 2009.
Sebastien Michelin, Department of MAE, University of California San Diego — Defended June 2009.
Virginia VanDelinder, Department of Physics, UC San Diego — Defended March 2009.
Nikos Savva, Department of Mathematics, Massachusetts Institute of Technology — Defended July 2007.
Peter Huang, Division of Engineering, Brown University — Defended September 2006.

Other Committees

DAMTP Director's Committee, since 2020
Trinity College Staff Committee, since 2019
Trinity College Graduate Studentships and Bursaries Committee, since 2019
Trinity College Ramanujan Studentships Committee, since 2019
Andreas Acrivos Award Committee, DFD, American Physical Society, 2019-2020
Trinity College Emoluments Committee, since 2018
Trinity College Dean's Committee, since 2017
Hiring committee, Lectureship in Soft Matter, DAMTP, 2016.
Part III committee, Faculty of Mathematics, since 2014 (Chair since 2020).
Francois Frenkiel Award Committee, DFD American Physical Society, 2016
Management Committee of the Isaac Newton Institute, Cambridge, since 2015
Gallery of Fluid Motion Competition Judge, APS DFD meeting, Boston, 2015
Trinity College Buildings Committee, 2014-2017.
Comité de recrutement, Département de Physique, Ecole Normale Superieure de Lyon, 2014.
Habilitation à Diriger des Recherches (HDR), Anne-Laure Biance, ILM, Lyon, France, November 2013.
DFD Program Committee, American Physical Society, since 2012.
Habilitation à Diriger des Recherches (HDR), Christophe Eloy, IRPHE, France, July 2010.

DFD Media Committee, American Physical Society, 2009 to 2010.

Conference and Workshop Organisation

Mini-symposium "Fluid Mechanics of Infectious Diseases" at the 2020 APS/DFD meeting.
Fluids and Elasticity '19 Conference, Malaga, Spain, June 2019.
Isaac Newton Institute, "Growth and Form" Long Programme, Cambridge, UK, September-December 2017.
22nd CISM-IUTAM Summer School on Biological and Bio-inspired Fluid Mechanics, Udine, Italy, July 2016.
Fluids and Elasticity '15 Conference, Biarritz, France, June 22-24 2015.
Mini-symposium "Cellular Flows", 10th Euromech Fluid Mechanics Conference, Copenhagen, Sept 2014.
Active Fluids: Bridging Complex Fluids and Biofluids, Aspen Center for Physics, Jan 27-Feb 1, 2014.
Fluids and Elasticity '12 Conference, La Jolla, CA, Nov. 14-16, 2012.
Mini-symposium "Fluid-structure interactions in biological systems" at the 2012 ICTAM Annual meeting.
Mini-symposium "Biological Perspectives on Locomotion" at the 2010 APS/DFD meeting.
Mini-symposium "Fluid Dynamics at Super-Repellent Surfaces" at the 2009 APS/DFD meeting.
Scientific committee, Fluids and Elasticity '09, Carry-le-Rouet, France, June 23-26 2009.
Third Southern California Symposium on Flow Physics, University of California San Diego, April 18 2009.
Biomechanics Seminar, Department of Mechanical and Aerospace Engineering, UC San Diego, since 2008.
Fluid Mechanics Seminar, Department of Mechanical and Aerospace Engineering, UC San Diego, 2008, 2011.
Mini-symposium "Incorporating Biology in a Fluids Curriculum" at the 2007 APS/DFD meeting.
Physical Mathematics Seminar, Department of Mathematics, MIT, 2006-2007.
Mechanics Seminar, Department of Mechanical Engineering, MIT, Spring 2006.
Fluids Seminar, Department of Mechanical Engineering, Massachusetts Institute of Technology, Fall 2005.

Membership

American Physical Society.

STUDENTS AND POSTDOCS ADVISED

Current

Masha Dvoriashyna, Postdoc, DAMTP, University of Cambridge
Christian Esparza-López, **PhD student**, DAMTP, University of Cambridge (Churchill College)
Ivan Tanasijevic, **PhD student**, DAMTP, University of Cambridge (Trinity College)
Maria Tătulea-Codrean, **PhD student**, DAMTP, University of Cambridge (Trinity College)
Albane Théry, **PhD student**, DAMTP, University of Cambridge (Churchill College)

Past

Debasish Das, Postdoc, DAMTP, University of Cambridge ('16-'20)
Alexander Chamolly **PhD student**, DAMTP, University of Cambridge (Trinity College) ('16-'20)
Thesis title: *"Propulsion, navigation and control of biological and artificial microswimmers"*
Josh Brown - Undergraduate student from Trinity College ('20)
Marco Vona - Undergraduate student from Trinity College ('20)
Weida Liao - Undergraduate student from Trinity College ('19 and '20)
Emeka Emmanuel Otti, African Institute of Mathematical Sciences Senegal, MS project ('20)
Maciej Lisicki, Postdoc, DAMTP, University of Cambridge ('15-'19)
Panayiota Katsamba **PhD student**, DAMTP, University of Cambridge (Newnham College) ('14-'18)
Thesis title: *"Biophysics of Helices: Devices, Bacteria and Viruses"*
Gabriele De Canio, **PhD student**, DAMTP, University of Cambridge (Peterhouse) ('14-'18)
Thesis title: *"Motion of filaments induced by molecular motors: from individual to collective dynamics"*
Justas Dauparas, **PhD student**, DAMTP, University of Cambridge (Hughes Hall) ('14-'18)
Thesis title: *"Stokes flows near boundaries: bacteria, corners, and pumps"*
Lyndon Koens, Postdoc, DAMTP, University of Cambridge ('16-'18)
Andy Zhao - Undergraduate student from Trinity College ('18)

Edward Beaty - Undergraduate student from Trinity College ('18)
Paul Robin - Visiting student from Ecole Normale Supérieure, Paris, France ('18)
Yi Man, **PhD student**, DAMTP, University of Cambridge (Trinity College) ('13-'17)
Thesis title: *"Swimming at low Reynolds number: Slip boundaries and interacting filaments"*
Emily Riley, **PhD student**, DAMTP, University of Cambridge (Magdalene College) ('13-'17)
Thesis title: *"Tricks and tips for faster small-scale swimming: Complex fluids and elasticity"*
Tamsin Spelman, **PhD student**, DAMTP, University of Cambridge (Queens' College) ('13-'17)
Thesis title: *"Artificial Micro-Devices: Armoured Microbubbles and a Magnetically Driven Cilium"*
Albane Théry - Visiting student from Ecole Polytechnique, France ('17)
Shang-Yik Reigh, Postdoc, DAMTP, University of Cambridge ('14-'16)
Thomas Montenegro-Johnson, Postdoc, DAMTP, University of Cambridge ('14-'16)
Lyndon Koens, **PhD student**, DAMTP, University of Cambridge (Hughes Hall) ('14-'16)
Thesis title: *"The Hydrodynamics of Complex Microswimmers: An exploration of slender filaments and ribbons"*
Maxime Gantier - Visiting student from Ecole Polytechnique, France ('16)
Marcos Rodrigues - Visiting student from Ecole Polytechnique, France ('16)
Ivan Tanasijevic - Undergraduate student from Trinity College ('16)
Maria Tătulea-Codrean - Undergraduate student from Trinity College ('16)
Luuk Metselaar, Visiting student from from TU Delft, UK ('14-'15)
Archie Bott, Undergraduate student from Trinity College ('14)
Anton Martinsso, Visiting student from from University of Manchester, UK ('14)
Boyuan Liu, visiting student from Ecole Polytechnique (France) ('14)
Gregory Wagner, **PhD student**, UC San Diego (co-advised with Bill Young, Scripps) ('10-'13)
Thesis title: *"On the coupled evolution of oceanic internal waves and quasi-geostrophic flow"*
Marco Vassallo, Visiting student from from Politecnico di Milano, Italy ('13-'14)
Diego Lopez, Postdoc, UC San Diego, Department of Mechanical and Aerospace Engineering ('13)
Martin Charrel, Visiting student from Ecole Polytechnique, France ('13)
Antoine Engerand, Visiting student from Ecole Polytechnique, France ('13)
Etienne Guerin, Visiting student from Ecole Polytechnique, France ('13)
Papa Gueye, Visiting student from Ecole Polytechnique, France ('13)
Hervé Manzanarez, Visiting student from Université de Toulouse, France ('13)
On Shun Pak, **PhD student**, UC San Diego, Department of MAE - ('08-'13).
Thesis title: *"Biological and Synthetic Locomotion in Newtonian and Complex Fluids at Low Reynolds Number"*
Mario Espinoza, Postdoc, UC San Diego, Department of Mechanical and Aerospace Engineering ('11-'12)
Rodrigo Velez, Postdoc, UC San Diego, Department of Mechanical and Aerospace Engineering ('11-'12)
Gwynn Elfring, **PhD student**, UC San Diego, Department of MAE - ('08-'12)
Thesis title: *"Symmetry Breaking and Synchronization at Small Scales"*
Alix de Belloy, Visiting student from Ecole Polytechnique, France ('12)
Baydir Bouali, Visiting student from ENS Cachan, France ('12)
Dario Cortese, Visiting student from Università di Roma, Italy ('12)
Tristan Fransen, Visiting student from Ecole Polytechnique, France ('12)
Saverio Spagnolie, Postdoc, UC San Diego, Department of Mechanical and Aerospace Engineering ('08-'11)
Arthur Evans, **PhD student**, UC San Diego, Department of Physics - ('08-'11)
Thesis title: *"The shape of things to come: examining the interplay of elasticity, activity, and geometry in soft matter"*
Nicolas Florent, Visiting student from Ecole Polytechnique, France ('11)
Fanny Thomas, Visiting student from Ecole Polytechnique, France ('11)
Clément Mettot, MS student from Ecole Polytechnique, France ('10)
Martin Sauzade, Visiting student from ENSTA, France ('09-'10)
Delphine Chardon, Visiting student from Ecole Polytechnique, France ('10)
Jean-Baptiste Desforges, Visiting student from Ecole Polytechnique, France ('10)
Sandra Ferraguti, Visiting student from Ecole Polytechnique, France ('10)
Loic Was, Visiting student from Ecole Polytechnique, France ('10)
Dor Ashur, MS student, UC San Diego, Department of Mechanical and Aerospace Engineering ('08-'10)
Jonathan Reuter, Undergraduate student, UC San Diego, Department of Bioengineering ('09-'10)

Sebastien Michelin, Postdoc, UC San Diego, Dept. of Mechanical and Aerospace Eng. (’09-’10)
Maja Stoevhase, Visiting student from University of Rostock, Germany (’08-’09)
Gary Oger, Visiting student from Ecole Normale Superieure, Paris, France (’09)
Loïc Tadrist, Visiting student from Ecole Normale Superieure, Cachan, France (’09)
Julien Alenda, Visiting student from ENSEEIHT, France (’09)
Jean Castex, Visiting student from Ecole Centrale Lyon, France (’09)
Christophe du Rotois, Visiting student from Ecole Polytechnique, France (’09)
Romain Labat, Visiting student from Ecole Polytechnique, France (’09)
Jean-Philippe Péraud, Visiting student from Ecole Polytechnique, France (’09)
Achille Lerpinière, Visiting student from Ecole Polytechnique, France (’08)
Fabien Lepère, Visiting student from Ecole Polytechnique, France (’08)
Victor Alonso, Visiting student from Ecole Polytechnique, France (’08)
Olivia Bui, MS student, UC San Diego, Department of Mechanical and Aerospace Engineering (’07-’08)
Thibaud Normand, Visiting student from Ecole Polytechnique, France (’07)
Pierre Morel-Fatio, Visiting student from Ecole Polytechnique, France (’07)
Christopher Cheng, Undergraduate student, Massachusetts Institute of Technology, Math Department (’07)
Allison Berke, Undergraduate student, Massachusetts Institute of Technology, Math Department (’06-'07)
Thu Duong, Undergraduate student, Massachusetts Institute of Technology, Math Department (’06)