List of Publications

ARTICLES IN PEER-REVIEWED JOURNALS

[1] **A. Callan-Jones**, S. Wieser, V. Ruprecht, C.-P. Heisenberg, and R. Voituriez. Cortical flow-driven shapes of nonadherent cells. *Phys. Rev. Lett.*, 116:028102, 2016.
doi:10.1103/PhysRevLett.116.028102

[2] **A. Callan-Jones**, M. Durand, and J.-B. Fournier. Hydrodynamics of bilayer membranes with diffusing transmembrane proteins. *Soft Matter*, 12:1791, 2016.
doi:10.1039/C5SM02507A

[3] C. Prévost, H. Zhao, J. Manzi, E. Lemichez, P. Lappalainen, **A. Callan-Jones***, and P. Bassereau*. IRSp53 senses negative membrane curvature and phase separates along membrane tubules. *Nat. Commun.*, 6:8529, 2015.
doi:10.1038/ncomms9529

[4] M. Gupta, B. R. Sarangi, J. Deschamps, **A. Callan-Jones**, F. Margadant, R. M. Mège, R. Voituriez, and B. Ladoux. Adaptative response of cell cytoskeleton rheology and ordering to matrix rigidity. *Nat. Commun.*, 6:7525, 2015.
doi:10.1038/ncomms8525

[5] Y. Liu, M. Le Berre, F. Lautenschlaeger, P. Maiuri, **A. Callan-Jones**, R. Voituriez, and M. Piel. Confinement in a non-adhesive environment induces fast amoeboid migration of slow mesenchymal cells. *Cell*, 160:659–672, 2015.
doi:10.1016/j.cell.2015.01.007

[6] V. Ruprecht, S. Wieser, **A. Callan-Jones**, M. Smutny, H. Morita, K. Sako, V. Barone, M. Ritsch-Marte, M. Sixt, R. Voituriez, and C.-P. Heisenberg. Cortical contractility triggers a stochastic switch to fast amoeboid migration in 3d environments. *Cell*, 160:673–685, 2015.
doi:10.1016/j.cell.2015.01.008

[7] S. Aimon, **A. Callan-Jones**, G. Toombes, and P. Bassereau. Membrane Shape Modulates Transmembrane Protein Distribution. *Dev. Cell*, 28:212–218, 2014.
doi:10.1016/j.devcel.2013.12.012

[8] **A. Callan-Jones**, and R. Voituriez Active gel model of amoeboid cell motility. *New J. Phys.*, 15:025022, 2013.
doi:10.1088/1367-2630/15/2/025022

[9] **A. Callan-Jones**, O. Albarran Arriagada, G. Massiera, V. Lorman, and M. Abkarian. Red blood cell membrane dynamics during malaria parasite egress. *Biophys J*, 103:2475–83, 2012.
doi:10.1016/j.bpj.2012.11.008

[10] **A. Callan-Jones**, P.-T. Brun, and B. Audoly. "Self-similar curling of a naturally curved elastica. *Phys. Rev. Lett.*, 108:174302, 2012.
doi:10.1103/PhysRevLett.108.174302
see also Physics Focus article.

[11] B. Sorre*, **A. Callan-Jones***, J. Manzi, B. Goud, J. Prost, P. Bassereau, and A. Roux. Nature of curvature coupling of amphiphysin with membranes depends on its bound density. *Proc Natl Acad Sci USA*, 109:173–8, 2012.
doi:10.1073/pnas.0811243106

[12] **A. Callan-Jones** and F. Jülicher. Hydrodynamics of active permeating gels. *New J. Phys.*, 13: 093027, 2011
doi:10.1088/1367-2630/13/9/093027

[13] M. Safouane, L. Berland, **A. Callan-Jones**, B. Sorre, W. Römer, L. Johannes, G. Toombes, and P. Bassereau. Lipid Co-sorting Mediated by Shiga Toxin Induced Tubulation. *Traffic*, 11:1519, 2010.
doi:10.1111/j.1600-0854.2010.01116.x

[14] B. Sorre*, **A. Callan-Jones***, J.-B. Manneville, P. Nassoy, J.-F. Joanny, J. Prost, B. Goud, and P. Bassereau. Curvature-driven lipid sorting needs proximity to a demixing point and is aided by proteins. *Proc Natl Acad Sci USA*, 106: 5622-5626, 2009.
doi:10.1073/pnas.0811243106

[15] **A. Callan-Jones**, J.-F. Joanny, and J. Prost. Viscous-fingering-like instability of cell fragments. *Phys Rev Lett*, 100:258106, 2008.
doi:10.1103/PhysRevLett.100.258106

[16] A. S. Backer, **A. Callan-Jones**, and R. A. Pelcovits. Nematic Cells with Defect-Patterned Alignment Layers. *Phys. Rev. E.*, 77:021701, 2008.
doi:10.1103/PhysRevE.77.021701

[17] **A. Callan-Jones**, R. A. Pelcovits, R. B. Meyer, and A. F. Bower. Untwisting of a Strained Cholesteric Elastomer by Disclination Loop Nucleation. *Phys. Rev. E.*, 75:011701, 2007.
doi:10.1103/PhysRevE.75.011701

[18] **A. Callan-Jones**, R. A. Pelcovits, D. Laidlaw, V. A. Slavin, S. Zhang, and G. Loriot. Simulation and Visualization of Topological Defects in Nematic Liquid Crystals. *Phys. Rev. E*, 74:061701, 2006.
doi:10.1103/PhysRevE.74.061701

[19] G. P. Crawford, J. N. Eakin, M. D. Radcliffe, **A. Callan-Jones**, and R. A. Pelcovits. Liquid-crystal diffraction gratings using polarization holography alignment techniques. *J. Appl. Phys.*, 98:123102, 2005.
doi:10.1063/1.2146075

[20] S. Basu, **A. Callan-Jones**, and R. J. Gooding. Increasing Superconducting T_c's by a Factor of 1000 with Large Hopping Anisotropies in Two-Dimensional t-J Model Systems. *Phys. Rev. B.*, 66:144507, 2002.
doi:10.1103/PhysRevB.66.144507

CONFERENCE PROCEEDINGS

[21] V. A. Slavin, S. Zhang, D. Laidlaw, G. Loriot, R. A. Pelcovits, and **A. Callan-Jones**. Visualization of Topological Defects in Nematic Liquid Crystals Using Streamtubes, Streamsurfaces, and Ellipsoids. *Proceedings of the '04 IEEE*

Conference on Visualization (refereed).
doi:10.1109/VISUAL.2004.117

REVIEW ARTICLES

[22] **A. Callan-Jones**, R. Voituriez. Actin flows in cell migration: from locomotion and polarity to trajectories. *Curr. Opin. Cell Biol*, 38:12, 2016.
doi:10.1016/j.ceb.2016.01.003

[23] M. Simunovic, G. Voth, **A. Callan-Jones**, and P. Bassereau. When Physics Takes Over: BAR Proteins and Membrane Curvature. *Trends. Cell Biol.*, 25:780, 2015.
doi:10.1016/j.tcb.2015.09.005

[24] **A. Callan-Jones**, P. Bassereau, and B. Sorre. Curvature-driven lipid sorting in biomembranes. *Cold Spring Harbor Perspectives in Biology*, 2011.
doi:10.1101/cshperspect.a004648

[25] **A. Callan-Jones** and P. Bassereau. Curvature-driven membrane lipid and protein distribution. *Curr. Opin. Solid St. M.*, 17: 143–150, 2013.
doi:10.1016/j.cossms.2013.08.004

BOOK CHAPTERS

[26] B. Audoly, **A. Callan-Jones**, and P.-T. Brun. Dynamic curling of an Elastica: a nonlinear problem in elastodynamics solved by matched asymptotic expansions. In D. Bigoni, editor, *Extremely Deformable Structures*, p. 137–55. Springer, 2015.

PREVIEW ARTICLES

[27] **A. Callan-Jones** and P. Bassereau. Membrane Fission: Curvature-Sensitive Proteins Cut It Both Ways. *Dev. Cell*, 22:691–692, 2012.
doi:10.1016/j.devcel.2012.04.001

POPULAR PRESS

[28] “La Physique de l’enroulement décriptée", *La Recherche*, June, 2012.
http://www.larecherche.fr/actualite/matiere/physique-enroulement-decryptee-01-07-2012-91264