Patricia Bassereau CNRS Researcher (DR1)
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Link to CV  Google Scholar - Full Publication List  ORCID

**Short CV**

Patricia Bassereau is CNRS Directrice de Recherche at the Institut Curie in Paris where she is the leader of the group "Membranes and cellular functions". She obtained a short PhD and a PhD in Soft Matter at the University of Montpellier where she started her carrier on the structure of self-assembled surfactant-based systems. She spent one year as a visiting scientist at the IBM Almaden Center (San Jose, USA) on thin polymer films. She moved to the Institut Curie in 1993 to work on questions related to "Physics of the cell". She develops a multidisciplinary approach, largely based on synthetic biology and biomimetic systems, as well as quantitative mechanical and microscopy methods to understand the role of biological membranes and of their organization in cellular functions such as intracellular trafficking, endo/exocytosis or adhesion. Additionally, she studies *in vitro* and *in cellulo* the mechanics and the generation of cellular protrusions. In parallel, she contributes to a more comprehensive physical description of biomembranes by studying the consequences of non-equilibrium transmembrane transport of ions on membrane mechanics ("active membranes"), the relation between membrane proteins' shape and their diffusion or their lateral distribution on membranes.

**Education**
Master: Solid State Physics (1983),
PhD (1985), PhD (1990)
HdR (Habilitation) (1999)

**Positions**
GDPC-Montpellier (1983-1991)
IBM Almaden (USA) (1992)
Physical Chemistry Curie-Paris (1993-Present)

**Research themes**
Soft Condensed Matter (Surfactants in solution, polymers, membranes), Physics for Biology, Physics of bio-membranes

**Current research**
Intracellular traffic, non-equilibrium membranes, membrane nanotubes, membranes in transportation, mechanics of filopodia

# Key publications

### Year of publication 2018

Feng-Ching Tsai*, Aurelie Bertin*, Hugo Bousquet, John Manzi, Yosuke Senju, Meng-Chen Tsai, Laura Picas, Stephanie Miserey-Lenkei, Pekka Lappalainen, Emmanuel Lemichez, Evelyne Coudrier*, Patricia Bassereau* (2018 Sep 30)
**Ezrin enrichment on curved membranes requires a specific conformation or interaction with a curvature-sensitive partner.**
*elife* : 7 : e37262 : DOI : 10.7554/eLife.37262

### Year of publication 2017

Mijo Simunovic, Jean-Baptiste Manneville, Henri-François Renard, Emma Evergren, Krishnan Raghunathan, Dhiraj Bhatia, Anne K. Kenworthy, Gregory A. Voth, Jacques Prost, Harvey T. McMahon, Ludger Johannes, Patricia Bassereau*, Andrew Callan-Jones* (2017 Jun 22)
**Friction mediates scission of tubular membranes scaffolded by BAR proteins**
*Cell* : 170 : 172-184 : DOI : 10.1016/j.cell.2017.05.047

Garten M., Mosgaard L.D., Bornschlögl T., Dieudonné S., Bassereau P., Toombes G.E.S. (2017 Jan 1)
**Whole-GUV patch-clamping**
*Proceedings of the National Academy of Sciences* : 114 : 328-333 : DOI : 10.1073/pnas.1609142114

### Year of publication 2016

Mijo Simunovic, Emma Evergren, Ivan Golushko, Coline Prévost, Henri-François Renard, Ludger Johannes, Harvey T McMahon, Vladimir Lorman, Gregory A Voth, Patricia Bassereau (2016 Oct 4)
**How curvature-generating proteins build scaffolds on membrane nanotubes.**
*Proceedings of the National Academy of Sciences of the United States of America* : 113 : DOI : 10.1073/pnas.1606943113

### Year of publication 2015

Coline Prévost, Hongxia Zhao, John Manzi, Emmanuel Lemichez, Pekka Lappalainen, Andrew Callan-Jones*, Patricia Bassereau* (2015 Feb 26)
**IRSp53 senses negative membrane curvature and phase separates along membrane tubules.**
*Nature communications* : 8529 : DOI : 10.1038/ncomms9529

Renard HF, Simunovic M, Lemière J, Boucrot E, Garcia-Castillo MD, Arumugam S, Chambon V, Lamaze C, Wunder C, Kenworthy AK, Schmidt AA, McMahon HT, Sykes C*, Bassereau P*, Johannes L (2015 Jan 22)
**Endophilin-A2 functions in membrane scission in clathrin-independent endocytosis**
*Nature* : 517 : 493-6 : DOI : 10.1038/nature14064

### Year of publication 2014

Laura Picas, Julien Viaud, Kristine Schauer, Stefano Vanni, Karim Hnia, Vincent Fraisier, Aurélien Roux, Patricia Bassereau, Frédérique Gaits-Iacovoni, Bernard Payrastre, Jocelyn Laporte, Jean-Baptiste Manneville, Bruno Goud (2014 May 19)
**BIN1/M-Amphiphysin2 induces clustering of phosphoinositides to recruit its downstream partner dynamin.**
*Nature communications* : 5647 : DOI : 10.1038/ncomms6647

Ayako Yamada, Alexandre Mamane, Jonathan Lee-Tin-Wah, Aurélie Di Cicco, Coline Prévost, Daniel Lévy, Jean-François Joanny, Evelyne Coudrier*, Patricia Bassereau* (2014 Apr 7)
**Catch-bond behaviour facilitates membrane tubulation by non-processive myosin 1b.**
*Nature communications* : 3624 : DOI : 10.1038/ncomms4624

François Quemeneur, Jon K Sigurdsson, Marianne Renner, Paul J Atzberger*, Patricia Bassereau*, David Lacoste* (2014 Mar 24)
**Shape matters in protein mobility within membranes.**
*Proceedings of the National Academy of Sciences of the United States of America* : 5083-7 : DOI :

10.1073/pnas.1321054111

Sophie Aimon, Andrew Callan-Jones, Alice Berthaud, Mathieu Pinot, Gilman E S Toombes*, Patricia Bassereau* (2014 Jan 27)
**Membrane shape modulates transmembrane protein distribution.**
*Developmental cell* : 212-8 : DOI : 10.1016/j.devcel.2013.12.012

**Year of publication 2013**

Thomas Bornschlögl, Stéphane Romero, Christian L Vestergaard, Jean-François Joanny, Guy Tran Van Nhieu, Patricia Bassereau (2013 Nov 6)
**Filopodial retraction force is generated by cortical actin dynamics and controlled by reversible tethering at the tip.**
*Proceedings of the National Academy of Sciences of the United States of America* : 18928-33 : DOI : 10.1073/pnas.1316572110

**Year of publication 2012**

Benoît Sorre, Andrew Callan-Jones, John Manzi, Bruno Goud, Jacques Prost, Patricia Bassereau*, Aurélien Roux* (2012 Jan 3)
**Nature of curvature coupling of amphiphysin with membranes depends on its bound density.**
*Proceedings of the National Academy of Sciences of the United States of America* : 109 : 173-178 : DOI : 10.1073/pnas.1103594108

**Year of publication 2010**

Aurélien Roux, Gerbrand Koster, Martin Lenz, Benoît Sorre, Jean-Baptiste Manneville, Pierre Nassoy, Patricia Bassereau (2010 Feb 18)
**Membrane curvature controls dynamin polymerization.**
*Proceedings of the National Academy of Sciences of the United States of America* : 4141-6 : DOI : 10.1073/pnas.0913734107

**Year of publication 2009**

Benoit Sorre, Andrew Callan-Jones, Jean-Baptiste Manneville, Pierre Nassoy, Jean-François Joanny, Jacques Prost, Bruno Goud, Patricia Bassereau (2009 Mar 24)
**Curvature-driven lipid sorting needs proximity to a demixing point and is aided by proteins.**
*Proceedings of the National Academy of Sciences of the United States of America* : 5622-6 : DOI : 10.1073/pnas.0811243106

M D El Alaoui Faris, D Lacoste, J Pécréaux, J-F Joanny, J Prost, P Bassereau (2009 Mar 5)
**Membrane tension lowering induced by protein activity.**
*Physical review letters* : 038102 : DOI : 10.1103/PhysRevLett.102.038102

**Year of publication 2007**

Winfried Römer, Ludwig Berland, Valérie Chambon, Katharina Gaus, Barbara Windschiegl, Danièle Tenza, Mohamed R E Aly, Vincent Fraisier, Jean-Claude Florent, David Perrais, Christophe Lamaze, Graça Raposo, Claudia Steinem, Pierre Sens, Patricia Bassereau, Ludger Johannes (2007 Aug 15)
**Shiga toxin induces tubular membrane invaginations for its uptake into cells.**
*Nature* : 450 : 670-675 : DOI : 10.1038/nature05996

**Year of publication 2005**

Aurélien Roux, Damien Cuvelier, Pierre Nassoy, Jacques Prost, Patricia Bassereau*, Bruno Goud* (2005 Mar 26)
**Role of curvature and phase transition in lipid sorting and fission of membrane tubules.**
*The EMBO journal* : 1537-45 : DOI : 10.1038/sj.emboj.7600631

Girard P, Prost J, Bassereau P (2005 Mar 1)
**Passive or active fluctuations in membranes containing proteins.**
*Phys. Rev. Lett.* : 94 : 088102 : DOI : 10.1103/PhysRevLett.94.088102

**Year of publication 2004**

Cécile Leduc, Otger Campàs, Konstantin B Zeldovich, Aurélien Roux, Pascale Jolimaitre, Line Bourel-Bonnet, Bruno Goud, Jean-François Joanny, Patricia Bassereau*, Jacques Prost* (2004 Dec 1)
**Cooperative extraction of membrane nanotubes by molecular motors.**
*Proceedings of the National Academy of Sciences of the United States of America* : 17096-101 : DOI : 10.1073/pnas.0406598101

**Year of publication 2002**

Aurélien Roux, Giovanni Cappello, Jean Cartaud, Jacques Prost, Bruno Goud*, Patricia Bassereau* (2002 Apr 18)
**A minimal system allowing tubulation with molecular motors pulling on giant liposomes.**
*Proceedings of the National Academy of Sciences of the United States of America* : 5394-9 : DOI : 10.1073/pnas.082107299

**Year of publication 1999**

J.-B. Manneville, P. Bassereau, D. Lévy, and J. Prost (1999 May 24)
**Activity of transmembrane proteins induces magnification of shape fluctuations of lipid membranes.**
*Phys. Rev. Lett.* : 82 : 4356 : DOI : 10.1103/PhysRevLett.82.4356

**Year of publication 1993**

Bassereau P, Brodbreck D, Russell TP, Brown HR, Shull KR (1993 Sep 13)
**Topological coarsening of symmetric diblock copolymer films: Model 2D systems.**
*Phys. Rev. Lett.* : 71 : 1716 : DOI : 10.1103/PhysRevLett.71.1716

**Year of publication 1986**

Larche FC, Appell J, Porte G, Bassereau P, Marignan J. (1986 Apr 21)
**Extreme swelling of a lyotropic lamellar liquid crystal.**
*Phys. Rev. Lett.* : 56 : 1700-1703. : DOI : 10.1103/PhysRevLett.56.1700