Darius Vasco Köster

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Academic Experience/ Positions

2023 – present	**Associate Professor,** Biophysics of the cell cortex – plasma membrane interface, Warwick Medical School, Biomedical Sciences, Coventry, United Kingdom
2023 – present	**Director** of the Computational and Advanced Microscopy Development Unit, Warwick Medical School, Biomedical Sciences, Coventry, United Kingdom
2018-23	**Assistant Professor**, Biophysics of the cell cortex – plasma membrane interface, Warwick Medical School, Biomedical Sciences, Coventry, United Kingdom
2017–18	**Research Fellow** in the laboratory of Prof. M. Balasubramanian, Warwick Medical School, Biomedical Sciences, Coventry, United Kingdom
2011–17	**Research Fellow** in the laboratory of Prof. S. Mayor, National Centre for Biological Sciences, Bangalore, India. Supported by AXA research fund and NCBS fellowships
2007–10	**Ph.D. project** in the laboratories of Prof. P. Bassereau and Dr. C. Lamaze, Institut Curie, Paris, France. Supported by an Institut Curie International PhD fellowship; **Thesis:** Role of Caveole in Membrane Tension

Education

Feb 2023	Fellow of the Higher Education Academy (Ref: PR258307)
Sep 2010	Dr. rer. nat. (PhD), Physics (Leipzig University (GE) & University Pierre et Marie Curie, Paris (FR)). Advisors: P. Nassoy (Institut Curie), J. Käs (Leipzig), 'summa cum laude'
Dec 2006	Diplom (M.Sc.) in Physics from Leipzig University
Oct 2002	enrolment at Leipzig University (GE)
Jul 2001	*Abitur* (high school diploma) at the *Gymnasium zum Grauen Kloster* in Berlin (GE)

Research funding

2024-26	EPSRC-International Collaboration Funding (£556,965, EP/Y002245/1)
2023-26	BBSRC- Rodrigues PI and Köster CoI (£556,965, ~£20,000 to DK lab, BB/X008533/1)
2022-23	BBSRC-International partnership funding (£16,900)
2022-25	EPSRC-New Investigator Award (£597,117, EP/V043498/1)
2020-21	BBSRC-ALERT19 equipment grant (Co-I, £516,907, BB/T018070/1)
2020	Warwick Global Research Project fund (£4,500)
2019	Warwick Research Development Fund (£24,803)
2018-19	Royal Society Research Grant (£18,948, RGS\R2\192442)
2018-23	Start-up grant from WMS (£130,000)

Post-doctoral fellowships: Reconstructing the cell surface in a test tube - **NCBS Campus fellow** (2013, £65000); Deciphering the role of active remodeling of cortical actin on the spatiotemporal organization of cell surface molecules using an in vitro assay - **AXA Fellowship** (2011, £105.000)

Conference grants: WARWICK IAS and IPF funding to support Vanderbilt-Warwick mechano-biology meeting and establish a network (2025, £10,000). **CoB** meeting grant for the Warwick Quantitative Biomedical Program symposium in 2021 (£2,500). **EMBO** conference grant (2017,

£26000, main organizer); **DFG** (German science foundation) conference grant (2015, £17000, co-organizer), **Wellcome Trust/ DBT** (Department of Biotechnology, Govt. of India) outreach grant (2015, £11000, main organizer), **ICTS** (International Centre for Theoretical Sciences) conference grant (2015, £20000, main organizer), **ICTS** conference grant (2013, £25000, main organizer)

Ph.D.: scholarship of the Institut Curie for foreign PhD candidates; **studies:** scholarship of the *Studienstiftung des deutschen Volkes* (stipend and expenses for books and workshops)

Awards

Jun 2024 Warwick Technical Services award for outstanding performance by CAMDU
Sep 2016 Zeeshan Memorial best paper Award
Sep 2016 travel award of the Company of Biologists to visit the Kukura lab in Oxford
Mar 2016 best poster award at OWLS (Optics within Life Sciences), Mumbai
Dec 2014 IUBMB travel award to attend the ASCB meeting, Philadelphia
Sep 2014 FEBS letters best poster award at EMBO/FEBS conference, Paris
Sep 2014 FEBS travel award to attend the EMBO/FEBS conference, Paris
Feb 2014 travel award by the Department of Science and Technology, Govt. of India

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Other Activities

2023 – present Member of the Academic Integrity Committee at Warwick Medical School

2022 – present Board member and science advocacy officer of the British Society for Cell Biology

Reviewer for *Nature*, *eLife*, *Proceedings of the National Academy of Sciences* (USA), *Nature Communications, Journal of Cell Sciences*, *Biophysical Journal* and *Nanoscale* (RSC) and other journals and for grant proposals for Wellcome Trust, EPSRC, and the Israel Science Foundation.

Invited talks

Dec 2024 IISER Kolkata, Department for Biological Sciences, Kolkata, IN
Sep 2024 IOP Active Matter seminar, Institute of Physics, London, UK
Apr 2024 90th Harden seminar: European Cytoskeletal Forum, Birmingham, UK
Mar 2024 Ludwig Maximilian University, SFB1032 Blockseminar, Munich, DE
Dec 2022 TU Delft, Kavli Institute of Nanosciences, Delft, NL
Sep 2022 National Centre for Biological Sciences (NCBS), Bangalore, IN
Sep 2022 Indian Institute of Science, Bangalore, IN
Apr 2022 Centre for Genomic Regulation (CRG), Barcelona, ES
Jul 2021 Molecular and Nanoscale Physics Group Seminar, University of Leeds, UK
Jul 2021 Bangalore Microscopy Course, NCBS, Bangalore (virtual)
Mar 2020 Kennedy Institute of Rheumatology, University of Oxford, UK
Feb 2020 Annual Meeting of the Biophysical Society, San Diego, UK
Mar 2019 University of Dundee, School of Life Science, UK
Jan 2019 'Reconstitution of Cell Cytoskeleton in vitro' CoB Workshop, Wiston house, UK
Feb 2018 Kent University, School of Biosciences, Canterbury, UK

Significant Peer Reviewed Publications *(#equal contribution)*

1. Al-Izzi SC, Ghanbarzadeh Nodehi S, **Köster DV**#, RG Morris# (2025) ATP-controlled remodeling in reconstituted actomyosin, *Physical Review Research,* doi: 10.1103/PhysRevResearch.7.013175

2. **Köster DV**, Bhat A, Talluri S, Mayor S. (2022). Reconstitution of Membrane-tethered Minimal Actin Cortices on Supported Lipid Bilayers. Journal of visualized experiments: *JoVE*, doi: 10.3791/63968.
3. Palani S, Balasubramanian MK, **Köster DV**. (2021) Calponin-Homology Domain mediated bending of membrane associated actin filaments. *eLife*, doi: 10.7554/eLife.61078
4. Malek S, **Köster DV,** The role of cell adhesion and cytoskeleton dynamics in the pathogenesis of the Ehlers-Danlos syndromes and hypermobility spectrum disorders, *Frontiers in cell and developmental biology* 9, 649082, doi: 10.3389/fcell.2021.649082
5. **Köster DV.** (2020) Pulling of tethers from the cell plasma membrane using Optical Tweezers. In CM Blouin (Ed.), Caveolae - Methods and Protocols (Vol. 2169). Springer.
6. Mosby L[#], Hundt N[#], Young G, Fineberg A, Polin M, Mayor S, Kukura P, **Köster D**. (2020) Visualization of myosin II filament dynamics in remodeling acto-myosin networks using interferometric scattering microscopy, *Biophysical Journal*. doi:10.1016/j.bpj.2020.02.025
7. Mosby LS, Polin M, **Köster DV** (2020) A Python based automated tracking routine for myosin II filaments, Journal of Physics D: Applied Physics, doi: 10.1088/1361-6463/ab87bf
8. Das A, Bhat A, Sknepnek R, **Köster D**, Mayor S, Rao M. (2020). Assemblies of F-actin and myosin-II minifilaments: steric hindrance and stratification at the membrane cortex. *Science Advances,* doi: 10.1126/sciadv.aay6093
9. Palani S, **Köster D**, Hatano T, Kamnev A, Kanamaru T, Brooker HR, Hernandez-Fernaud JR, Jones AME, Millar JBA, Mulvihill DP, Balasubramanian MK. (2019) Phospho-regulation of tropomyosin is crucial for actin cable turnover and division site placement in fission yeast. *J. Cell Biol.* doi: 10.1083/jcb.201809089
10. Ditlev JA[#], Vega AR[#], **Köster DV**[#], Su X, Tani T, Lakoduk AM, Vale RD, Mayor S, Jaqaman K, Rosen MK. (2019) A Composition-Dependent Molecular Clutch Between T Cell Signaling Clusters and Actin. *eLife.* doi: 10.7554/eLife.42695
11. Dewulf M, **Köster D**, Sinha B, Lesegno C V de, Chambon V, Bigot A, Tardif N, Johannes L, Nassoy P, Butler-Browne G, Lamaze C, Blouin C M. (2019) Dystrophy-associated caveolin-3 mutations reveal that caveolae couple IL6/STAT3 signaling with mechanosensing in human muscle cells. *Nat. Commun.* Doi: 10.1038/s41467-019-09405-5
12. **Köster DV**, Mayor S. (2016) Cortical actin and the plasma membrane: inextricably intertwined**.** *Curr. Opin. Cell Biol.* doi: 10.1016/j.ceb.2016.02.021
13. **Köster DV**, Husain K, Iljazi E, Bhat A, Bieling P, Mullins RD, Rao M, Mayor S. (2016) Actomyosin dynamics drive local membrane component organization in an in vitro active composite layer. *Proc. Natl. Acad. Sci. USA.* doi:10.1073/pnas.1514030113.
14. Campillo C, Sens P, **Köster D**, Pontani LL, Lévy D, Bassereau P, Nassoy P, Sykes C. (2013) Unexpected Membrane Dynamics Unveiled by Membrane Nanotube Extrusion. *Biophys. J*. doi: 10.1016/j.bpj.2013.01.051
15. Sinha B[#], **Köster D**[#], …, Lamaze C, Nassoy P. (2011) Cells respond to mechanical stress by rapid disassembly of caveolae. *Cell*. doi: 10.1016/j.cell.2010.12.031