Publications:

Prof. Dr. Angela Stevens **January 2023**
University of Münster (WWU)
Applied Mathematics
Institute for Analysis and Numerics Phone: +49-251-83 35063
Einsteinstr. 62 Fax: +49-251-83-32729
D-48149 Münster, Germany *angela.stevens@wwu.de*

1. Luckhaus, S. and Stevens, A. (2023): A two level contagion process and its McKendrick limit, with relevance for the Covid epidemic. Preprint. Submitted for journal publication.

2. Luckhaus, S. and Stevens, A. (2023): A free boundary problem - in time - for the spread of Covid-19. Preprint. Submitted for journal publication.

3. Luckhaus, S. and Stevens, A. (2023): Kermack and McKendrick models on a two-scale network and connections to the Boltzmann equations. Lecture Notes in Mathematics 2313, Mathematics Going Forward, eds. Morel and Teissier, 399 – 408.

4. Stevens, A. and Winkler, M. (2022): Taxis-driven persistent localization in a degenerate Keller-Segel system. Communications in PDE, Vol. 47, No. 12, 2341–2362.

5. Scheel, A. and Stevens, A. (2021): *Regeneration of Tissue: Lessons Learned from Flatworms.* SIAM News Online. Research. Oct. 18th, 2021. https://sinews.siam.org/Details-Page/regeneration-of-tissue-lessons-learned-from-flatworms

6. Scheel, A., Stevens, A. and Tenbrock, C. (2021): *Signaling gradients in surface dynamics as basis for planarian regeneration.* J. Math. Biol., Vol. 83, No. 1, Paper No. 6, 31 pp.

7. Kaib G., Kang K. and Stevens A. (2020): *Global minimisers for anisotropic attractive-repulsive interactions.* European J. Appl. Math., Vol. 31, No. 5, 854–870.

8. Kang K., Scheel A. and Stevens A. (2019): *Global phase diagrams of run-and-tumble dynamics: equidistribution, waves, and blowup.* Nonlinearity, Vol. 32, No. 6, 2128–2146.

9. Burger M., DiFrancesco M., Fagioli S. and Stevens A. (2018): *Sorting phenomena in a mathematical model for two mutually attracting/repelling species.* SIAM J. Math. Anal., Vol. 50, No. 3, 3210–3250.

10. Stevens A. and Velázquez J.J.L. (2018): *Asymptotic analysis of a chemotaxis system with non-diffusive memory.* Submitted to EJAM. Preprint available at MPI MIS, Leipzig.

11. Ambrosi D., Liu C., Röger M. and Stevens A. - Eds. - (2018): *The Mathematics of Mechanobiology and Cell Signalling.* Oberwolfach Reports No. 8/2018.

12. Stevens A. (2017): *Mathematics in the Life-Sciences: A personal point of view.* Jahresberichte der Deutschen Mathematiker Vereinigung (DMV), Vol. 119, No. 3, 143–168.

13. Scheel A. and Stevens A. (2017): *Wavenumber selection mechanisms in coupled transport equations.* J. Math. Biol., Vol. 75, 1047–1073.

14. Grosskinsky S., Marahrens D. and Stevens A. (2017): *A hydrodynamic limit for chemotaxis in a given heterogeneous environment.* Vietnam J. Math., Vol. 45, No. 1-2, 127–152.

15. Kang K. and Stevens A. (2016): *Blowup and global solutions in a chemotaxis-growth system.* Nonlinear Anal., Vol. 135, 57–72.

16. Hamel F., Otani M., Stevens A. and Webb J.R.L. - Eds. - (2015): The International Conference: *Nonlinear Phenomena in Biology, Physics and Mechanics*, Munich 2014. In honor of M. Efendiev on the occasion of his 60st birthday. Math. Methods Appl. Sci., Vol. 38, No. 16.

17. Fuhrmann J. and Stevens A. (2015): *A free boundary problem for cell motion.* Differential Integral Equations, Vol. 28, No. 7-8, 695–732.

18. Stevens A. (2015): *Mathematik und Biowissenschaften.* Studien- und Berufsplaner Mathematik. Springer Spektrum. 124–127.

19. Freistühler H., Fuhrmann J. and Stevens A. (2014): *Traveling waves emerging in a diffusive moving filament system.* Managing complexity, reducing perplexity. Modelling biological systems. Eds. G. Ajmone-Marsan, M. Delitala, Springer. 91–100.

20. Stevens A. (2014): *Mathematische Modellierung von Strukturbildung in zellulären Systemen.* Nordrhein-Westfälische Akademie der Wissenschaften und Künste - Naturwissenschaften und Medizin, Band 485, xxx – xxx .

21. Primi I., Stevens A. and Velázquez J.J.L. (2013): *Pattern forming instabilities driven by non-diffusive interaction.* Netw. Heterog. Media, Vol. 8, No. 1, 397–432.

22. Espejo E.E., Stevens A. and Suzuki T. (2012): *Simultaneous Blowup and Mass Separation During Collapse in an Interacting System of Chemotactic Species.* Differential and Integral Equations, Vol. 25, No. 3-4, 251–288.

23. Horstmann D. and Stevens A. (2011): *Origins of Theoretical Biology.* European Communications in Mathematical and Theoretical Biology. No. 14, 94–103.

24. Stevens A. (2011): *Angewandte Analysis.* In Facettenreiche Mathematik: Einblicke in die moderne mathematische Forschung. 327–346. Eds. K. Wendland, A. Werner. Vieweg und Teubner Verlag.

25. Wiebel A., Chan R., Wolf C., Robitzki A., Stevens A. and Scheuermann G. (2010): *Topological flow structure in a mathematical model for rotation-mediated cell aggregation.* Topological Methods in Data Analysis and Visualization. 193–204. Eds. Pascucci, Tricoche, Hagen, Tierny. Springer Verlag. labelrotational

26. Espejo E. E., Stevens A. and Velázquez J.J.L. (2010): *A note on non-simultaneous blow-up for a drift-diffusion model.* Differential and Integral Equations, Vol. 23, no. 5-6, 451–462.

27. Kang K., Stevens A. and Velázquez J.J.L. (2010): *Qualitative behavior of a Keller-Segel model with non-diffusive memory.* Communications in PDE, Vol. 35, no. 2, 245–274.

28. DiBenedetto E., Perthame B. and Stevens A. - Eds. (2009): *Mathematical biology.* Oberwolfach Reports, Vol. 6, No. 2, 1303–1373.

29. Espejo E. E., Stevens A. and Velázquez J.J.L. (2009): *Simultaneous finite time blow-up in a two species model for chemotaxis.* Analysis, Vol. 29, no. 3, 317–338.

30. Primi I., Stevens A. and Velázquez J.J.L. (2009): *Mass-selection in alignment models with non-deterministic effects.* Communications in PDE, Vol. 34, 419–456.

31. Kang K., Perthame B., Stevens A. and Velázquez J.J.L. (2009): *An integro-differential equation model for alignment and orientational aggregation.* J. of Differential Equations, Vol. 246, 1387–1421.

32. Dkhil F. and Stevens A. (2009): *Traveling wave speeds in rapidly oscillating media.* DCDS, Vol. 26, no. 1, 89–108.

33. Stevens A. and Velázquez J.J.L. (2008): *Partial differential equations and non-diffusive structures.* Nonlinearity, Vol. 21, T283–T289.

34. Fuhrmann J., Käs J. and Stevens A. (2007): *Initiation of cytoskeletal asymmetry for cell polarization and movement.* J. of Theo. Biol. 249, 278–288.

35. DiBenedetto E., Perthame B. and Stevens A. - Eds. - (2006): *Mathematical biology.* Oberwolfach Reports, Vol. 3, no. 2, 1385–1461.

36. Dkhil F. and Stevens A. (2006): *Traveling wave speeds of nonlocally perturbed reaction diffusion equations.* Asymptot. Anal. 46 , No. 1, 81–91.

37. Hwang H.J., Kang K. and Stevens A. (2006): *Global existence of classical solutions for a hyperbolic chemotaxis model and its parabolic limit.* Indiana Univ. Math. J. 55, No. 1, 289–316.

38. Stevens A. and Søgaard-Andersen, L. (2005): *Making waves: pattern formation by a cell-surface-associated signal.* Trends Microbiol., Vol. 13, No. 6, 249–252.

39. Hwang H.J., Kang K. and Stevens A. (2005): *Global solutions of transport equations for chemosensitive movement.* SIAM J. Math. Analysis, Vol. 36, No. 4, 1177–1199.

40. Hwang H.J., Kang K. and Stevens A. (2005): *Drift-diffusion limits of kinetic models for chemotaxis: a generalization.* DCDS-b, Vol. 5, No. 2, 319–334.

41. Horstmann D. and Stevens A. (2004): *A constructive approach to traveling waves in chemotaxis.* J. Nonlinear Sci., Vol. 14, No. 1, 1–25.

42. Lutscher F. and Stevens A. (2002): *Emerging patterns in a hyperbolic model for locally interacting cell systems.* J. Nonlinear Sci., Vol. 12, No. 6, 619-640.

43. Heinze S., Papanicolaou G. and Stevens A. (2001): *Variational principles for propagation speeds in inhomogeneous media.* SIAM J. of Appl. Math., Vol. 62, No. 1, 129-148.

44. Stevens, A. (2000): *Derivation of chemotaxis-equations as limit dynamics of moderately interacting stochastic many particle systems.* SIAM J. of Appl. Math., Vol. 61, No. 1, 183-212.

45. Stevens, A. (2000): *A stochastic cellular automaton, modeling gliding and aggregation of Myxobacteria.* SIAM J. of Appl. Math., Vol. 61, No. 1, 172-182.

46. Hillen T. and Stevens A. (2000): *Hyperbolic models for chemotaxis in 1-D.* Nonlinear Analysis: Real World Applications, Vol. 1, No. 3., 409–433.

47. Stevens, A. and Schweitzer F. (1997): *Aggregation induced by diffusing and non-diffusing media.* Dynamics of Cell and Tissue Motion. Eds. W. Alt, A. Deutsch, G. Dunn. Birkhäuser, Basel: 183 - 192. (*Refereed*)

48. Othmer, H.G. and Stevens, A. (1997): *Aggregation, blowup and collapse: the ABC's of taxis in reinforced random walks.* SIAM J. of Appl. Math., Vol. 57, No. 4, 1044-1081.

49. Stevens, A. (1996): *Simulation of chemotaxis-equations in two space dimensions.* Nonlinear Physics of Complex Systems - Current Status and Future Trends. Eds. J. Parisi, S. C. Müller, and W. Zimmermann. Springer Verlag, Berlin.

50. Stevens, A. (1995): *Trail following and aggregation of Myxobacteria.* J. of Biol. Systems, Vol. 3, 1059-1068.

51. Stevens, A. (1993): *Aggregation of Myxobacteria - a many particle system.* First European Conference of Mathematics Applied to Biology and Medicine. Wuerz Publishing, Winnipeg: 519 - 524.

52. Stevens, A. (1991): *A model for gliding and aggregation of Myxobacteria.* Nonlinear wave processes in excitable media. Eds. A. Holden, M. Markus, H.G. Othmer. Plenum Press, New York: 269 - 276.

53. Stevens, A. (1990): *Simulations of the aggregation and gliding behavior of Myxobacteria.* Biological motion. Lecture Notes in Biomathematics 89. Eds. W. Alt, G. Hoffmann. Springer Verlag Berlin, Heidelberg: 548 - 555. (*Refereed*)