

Literaturverzeichnis

- [1] S. G. Advani and C. L. Tucker. The Use of Tensors to Describe and Predict Fiber Orientation in Short Fiber Composites. *Journal of Rheology (1978-present)*, 31(8):751–784, Nov. 1987.
- [2] S. Akbar and M. C. Altan. On the solution of fiber orientation in two-dimensional homogeneous flows. *Polymer Engineering & Science*, 32(12):810–822, 1992.
- [3] A. A. Albert. An Inductive Proof of Descartes' Rule of Signs. *The American Mathematical Monthly*, 50(3):pp. 178–180, 1943.
- [4] M. Altan and L. Tang. Orientation tensors in simple flows of dilute suspensions of non-Brownian rigid ellipsoids, comparison of analytical and approximate solutions. *Rheologica Acta*, 32(3):227–244, 1993.
- [5] B. Anderson, J. Jackson, and M. Sitharam. Descartes' Rule of Signs Revisited. *The American Mathematical Monthly*, 105(5):pp. 447–451, 1998.
- [6] F. P. Bretherton. The motion of rigid particles in a shear flow at low Reynolds number. *Journal of Fluid Mechanics*, 14(02):284–304, Sept. 1962.
- [7] C. Canuto, M. Y. Hussaini, A. Quarteroni, and T. A. Zang. *Spectral methods in Fluid Dynamics*. Springer-Verlag, 1988.
- [8] K. Deckelnick, G. Dziuk, and C. M. Elliott. Computation of geometric partial differential equations and mean curvature flow. *Acta Numerica*, 14:139–232, May 2005.
- [9] S. M. Dinh and R. C. Armstrong. A Rheological Equation of State for Semiconcentrated Fiber Suspensions. *Journal of Rheology*, 28(3):207–227, 1984.
- [10] G. Dziuk and C. M. Elliott. Finite element methods for surface PDEs. *Acta Numerica*, 22:289–396, Apr. 2013.
- [11] C. Fletcher. The group finite element formulation. *Computer Methods in Applied Mechanics and Engineering*, 37(2):225 – 244, 1983.
- [12] A. D. Fokker. Die mittlere Energie rotierender elektrischer Dipole im Strahlungsfeld. *Ann. Phys.*, 348(5):810–820, 1914.

-
- [13] F. Folgar and C. L. Tucker. Orientation Behavior of Fibers in Concentrated Suspensions. *Journal of Reinforced Plastics and Composites*, 3(2):98–119, Apr. 1984.
- [14] G. P. Galdi and B. Reddy. Well-posedness of the problem of fiber suspension flows. *Journal of Non-Newtonian Fluid Mechanics*, 83(3):205 – 230, 1999.
- [15] D. Gottlieb and J. Hesthaven. Spectral methods for hyperbolic problems*. In D. S. S. Vandewalle, editor, *Partial Differential Equations*, volume 7 of *Numerical Analysis 2000*, pages 83 – 131. Elsevier, Amsterdam, 2001.
- [16] K.-H. Han and Y.-T. Im. Modified hybrid closure approximation for prediction of flow-induced fiber orientation. *Journal of Rheology (1978-present)*, 43(3):569–589, 1999.
- [17] C. Helzel and F. Otto. Multiscale simulations for suspensions of rod-like molecules. *Journal of Computational Physics*, 216(1):52–75, July 2006.
- [18] D. A. Jack and D. E. Smith. Assessing the use of tensor closure methods with orientation distribution reconstruction functions. *Journal of composite materials*, 38(21):1851–1871, 2004.
- [19] G. B. Jeffery. The Motion of Ellipsoidal Particles Immersed in a Viscous Fluid. *Royal Society of London Proceedings Series A*, 102:161–179, Nov. 1922.
- [20] R. Kerekes and C. Schell. Characterization of fibre flocculation regimes by a crowding factor. *Journal of pulp and paper science*, 18(1):J32–J38, 1992.
- [21] D. Kuzmin. Algebraic Flux Correction I. Scalar Conservation Laws. In D. Kuzmin, R. Löhner, and S. Turek, editors, *Flux-Corrected Transport*, Scientific Computation, pages 145–192. Springer Netherlands, 2012.
- [22] D. Kuzmin and M. Möller. Algebraic Flux Correction I. Scalar Conservation Laws. In D. Kuzmin, R. Löhner, and S. Turek, editors, *Flux-Corrected Transport*, Scientific Computation, pages 155–206. Springer Berlin Heidelberg, 2005.
- [23] D. Kuzmin and S. Turek. Subgrid Scale Modeling and Efficient Finite Element Simulation of Fiber Suspension Flows. *DFG-Antrag KU1530/13-1*, 2013.
- [24] G. G. Lipscomb, M. M. Denn, D. U. Hur, and D. V. Boger. The flow of fiber suspensions in complex geometries. *Journal of Non-Newtonian Fluid Mechanics*, 26(3):297–325, 1988.
- [25] S. Montgomery-Smith, W. He, D. A. Jack, and D. E. Smith. Exact tensor closures for the three-dimensional Jeffery’s equation. *Journal of Fluid Mechanics*, 680:321–335, 2011.
- [26] S. Montgomery-Smith, D. A. Jack, and D. E. Smith. A systematic approach to obtaining numerical solutions of Jeffery’s type equations using Spherical

- Harmonics. *Composites Part A: Applied Science and Manufacturing*, 41(7):827 – 835, Mar. 2010.
- [27] M. Planck. Über einen Satz der statistischen Dynamik und seine Erweiterung in der Quantentheorie. *Sitzungsberichte der Preußischen Akademie der Wissenschaften*, 24(324-341), 1917.
- [28] B. Reddy and G. Mitchell. Finite element analysis of fibre suspension flows. *Computer Methods in Applied Mechanics and Engineering*, 190(18–19):2349 – 2367, 2001.
- [29] A. J. Szeri and D. J. Lin. A deformation tensor model of Brownian suspensions of orientable particles—the nonlinear dynamics of closure models. *Journal of Non-Newtonian Fluid Mechanics*, 64(1):43 – 69, 1996.
- [30] E. Tadmor. The Exponential Accuracy of Fourier and Chebyshev Differencing Methods. *SIAM Journal on Numerical Analysis*, 23(1):1–10, 1986.
- [31] C. Tucker and S. G. Advani. Processing of short-fiber systems. *Composite Materials Series*, pages 147–202, 1994.
- [32] D. Vincenzi. Orientation of non-spherical particles in an axisymmetric random flow. *Journal of Fluid Mechanics*, 719:465–487, 3 2013.
- [33] Voith Paper GmbH. Papiermaschine - Perlen PM 7. <http://voith.com/de/presse/bildmaterial/papier-21795.html>, march 2015.