

KINETIC THEORY

Novel Statistical, Stochastic and Analytical Methods

MSRI/SLMath, August 18 to December 19, 2025

BOOKS

- [1] C. CERCIGNANI, R. ILLNER, and M. PULVIRENTI, *The mathematical theory of dilute gases*, Applied Mathematical Sciences **106**, Springer, Cham, Switzerland, 1994, ISBN 0-387-94294-7. [MR](#) [Zbl](#)
- [2] R. T. GLASSEY, *The Cauchy problem in kinetic theory*, Society for Industrial and Applied Mathematics, Philadelphia, PA, 1996. [MR](#) [Zbl](#)
- [3] F. GOLSE, *On the dynamics of large particle systems in the mean field limit*, in *Macroscopic and large scale phenomena: Coarse graining, mean field limits and ergodicity*, A. MUNTEAN, J. RADEMACHER, and A. ZAGARIS, eds., Lect. Notes Appl. Math. Mech. **3**, Springer, Cham, Switzerland, 2016, pp. 1–144. [MR](#) [Zbl](#) [arXiv](#).
- [4] B. PERTHAME, *Kinetic formulation of conservation laws*, Oxford Lecture Series in Mathematics and its Applications **21**, Oxford University Press, Oxford, UK, 2002, ISBN 0-19-850913-8. [MR](#) [Zbl](#)
- [5] L. SAINT-RAYMOND, *Hydrodynamic limits of the Boltzmann equation*, Lecture Notes in Mathematics **1971**, Springer, Cham, Switzerland, 2009, ISBN 978-3-540-92846-1. [MR](#) [Zbl](#)
- [6] Y. SONE, *Molecular gas dynamics: Theory, techniques, and applications*, Modeling and Simulation in Science, Engineering and Technology, Birkhäuser, Boston, MA, 2007, ISBN 978-0-8176-4345-4; 0-8176-4345-1. [MR](#) [Zbl](#)
- [7] H. SPOHN, *Large scale dynamics of interacting particles*, Texts and Monographs in Physics, Springer, Cham, Switzerland, 1991, ISBN 978-3-642-84373-0. [Zbl](#)
- [8] C. VILLANI, *Optimal transport: Old and new*, Grundlehren der mathematischen Wissenschaften **338**, Springer, Cham, Switzerland, 2009, ISBN 978-3-540-71049-3. [MR](#) [Zbl](#)

JOURNALS

- [9] *Analysis & PDE*, Mathematical Sciences Publishers, Berkeley, CA. ISSN 2157-5045, e-ISSN 1948-206X [MR](#) [ZBL](#).
- [10] *Archive for Rational Mechanics and Analysis*, Springer, Cham, Switzerland. ISSN 0003-9527, e-ISSN 1432-0673 [MR](#) [ZBL](#).
- [11] *Communications in Mathematical Physics*, Springer, Cham, Switzerland. ISSN 0010-3616, e-ISSN 1432-0916 [MR](#) [ZBL](#) [Archive](#).
- [12] *Kinetic and Related Models*, AIMS Press, Springfield, MO. e-ISSN 1937-5077 [MR](#) [ZBL](#).
- [13] *Probability and Mathematical Physics*, Mathematical Sciences Publishers, Berkeley, CA. ISSN 2690-0998, e-ISSN 2690-1005 [MR](#) [ZBL](#).
- [14] *SIAM Journal on Mathematical Analysis*, Society for Industrial and Applied Mathematics, Philadelphia, PA. ISSN 0036-1410, e-ISSN 1095-7154 [MR](#) [ZBL](#).