

Zubarev, Dimitrii; Morozov, Vladimir; Röpke, Gerd

Statistical mechanics of nonequilibrium processes. Vol. 2: Relaxation and hydrodynamic processes. (English) [Zbl 0890.00009](#)

Berlin: Akademie Verlag. 375 p. (1997).

For the review of Part 1 see [Zbl 0890.00008](#) above.

This is part 2 of a two-volume textbook on the statistical theory of non-equilibrium processes. The general theory developed in part 1 is now applied to problems in linear response and transport theory, correlation functions, master equation and relaxation phenomena, hydrodynamics and theory of fluids, and fluctuation theory including turbulence.

In comparison to part 1, this is more directed to active research areas, such as laser theory, superfluidity, large-scale fluctuations and turbulence. Nevertheless, exercises and problems are included. The second volume is considerably more advanced than the first and, in particular, some familiarity with field theoretic notions is needed to follow the line of thought.

Reviewer: [M.Baake \(Tübingen\)](#)

MSC:

- [00A79](#) Physics (Use more specific entries from Sections 70-XX through 86-XX when possible)
- [82-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to statistical mechanics
- [82C31](#) Stochastic methods (Fokker-Planck, Langevin, etc.) applied to problems in time-dependent statistical mechanics
- [82C05](#) Classical dynamic and nonequilibrium statistical mechanics (general)
- [82C10](#) Quantum dynamics and nonequilibrium statistical mechanics (general)
- [82D50](#) Statistical mechanical studies of superfluids
- [76F99](#) Turbulence
- [82D10](#) Statistical mechanical studies of plasmas
- [82D15](#) Statistical mechanical studies of liquids
- [82D20](#) Statistical mechanical studies of solids

Cited in **2** Reviews
Cited in **28** Documents

Keywords:

[statistical physics](#); [non-equilibrium processes](#); [hydrodynamics](#); [exercises](#); [problems](#)