



# Theory of Simple Liquids, Fourth Edition: with Applications to Soft Matter

By Jean-Pierre Hansen, I.R. McDonald

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## Theory of Simple Liquids, Fourth Edition: with Applications to Soft Matter

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Comprehensive coverage of topics in the theory of classical liquids

Widely regarded as the standard text in its field, *Theory of Simple Liquids* gives an advanced but self-contained account of liquid state theory within the unifying framework provided by classical statistical mechanics. The structure of this revised and updated Fourth Edition is similar to that of the previous one but there are significant shifts in emphasis and much new material has been added.

Major changes and Key Features in content include:

- Expansion of existing sections on simulation methods, liquid-vapour coexistence, the hierarchical reference theory of criticality, and the dynamics of super-cooled liquids.
- New sections on binary fluid mixtures, surface tension, wetting, the asymptotic decay of pair correlations, fluids in porous media, the thermodynamics of glasses, and fluid flow at solid surfaces.
- An entirely new chapter on applications to 'soft matter' of a combination of liquid state theory and coarse graining strategies, with sections on polymer solutions and polymer melts, colloidal dispersions, colloid-polymer mixtures, lyotropic liquid crystals, colloidal dynamics, and on clustering and gelation.
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**Bibliography**

- Sales Rank: #431596 in Books
- Published on: 2013-10-10
- Released on: 2013-09-26
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x 1.44" w x 6.00" l, 2.24 pounds
- Binding: Paperback
- 636 pages

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#### Review

"The structure of this revised and updated fourth edition is similar to that of the previous one but there are significant shifts in emphasis and much new material has been added. Major changes and key features in content include: Expansion of existing sections on simulation methods, liquid-vapour coexistence, the hierarchical reference theory of criticality,..."--**Zentralblatt MATH, 1277.00030** "The editions have kept up with the fields, and this fourth contains many new sections of such matters as binary systems, the asymptotic decay of the pair correlation function, fluid flows at the interface with a solid, and the thermodynamics of supercooled liquids. The new chapter on applications to soft matter shows the recent and gradual convergence between two fields that have evolved separately."--**ProtoView.com, January 2014**

#### From the Back Cover

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