Reviews of Modern Physics

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645 **The extraordinary phases of liquid ^{3}He** David M. Lee

667 **Superfluidity in ^{3}He: Discovery and understanding** Douglas D. Osheroff

683 **The Pomeranchuk effect** Robert C. Richardson

The 1996 Nobel Prize in Physics was shared by David M. Lee, Douglas D. Osheroff, and Robert C. Richardson. These papers are the texts of their addresses on the occasion of the award.

691 **Dawn of the fullerenes: experiment and conjecture** Robert F. Curl

703 **Symmetry, space, stars and C_{60}** Harold Kroto

723 **Discovering the fullerenes** Richard E. Smalley

The 1996 Nobel Prize in Chemistry was shared by Robert F. Curl, Harold Kroto, and Richard E. Smalley. These papers are the texts of their addresses on the occasion of the award.

731 **Random-matrix theory of quantum transport** C. W. J. Beenakker

Many diverse phenomena in nature, including the energy-level statistics of heavy nuclei, universal conductance of disordered wires, and generic chaotic behavior, can all be understood within the constructs of random-matrix theory. This article presents a comprehensive review of random-matrix theory specifically designed for nonexperts. The author gives particular attention to recent exciting developments in the area of mesoscopic quantum transport.

809 **The ground-state phase diagram of the one-dimensional Kondo lattice model**

Hirokazu Tsunetsugu
Manfred Sigrist
Kazuo Ueda

The physics of correlated electrons in metals is one of the major topics in contemporary solid-state physics. Strong correlation phenomena such as the ''heavy-fermion'' metallicity can so far only be treated by simplified theoretical models. The authors review the one-dimensional Kondo model, which has both rigorous and approximate solutions. They discuss in detail the phase diagrams and various electronic and magnetic properties of these systems.

865 **Nonlinear dynamics and breakup of free-surface flows**

Jens Eggers

Droplet formation of liquids with moving surfaces is a long-standing topic in hydrodynamics, analyzed in the nineteenth century by linear stability theory. New understanding has come recently of the nonlinear region, spurred by refined experiments and technological applications. A key element in the recent progress was the discovery of a scaling solution of the hydrodynamic equations near the singular point of droplet separation.

931 **Long-scale evolution of thin liquid films**

Alexander Oron
Stephen H. Davis
S. George Bankoff

Viscous fluid flows with interfaces are frequently two dimensional with only the film thickness necessary to specify the dynamics in the third dimension. In such cases asymptotic theory can be used to reduce the full dynamical problem to the solution of an evolution equation. The authors review continuous films and the spreading of liquid drops subject to various driving forces. The resulting evolution equations are analyzed and sample results given for linearized stability and nonlinear evolution.

RMP Colloquium:

981 **Independent particle motion and correlations in fermion systems**

Vijay R. Pandharipande
Ingo Sick
Peter K. A. deWitt Huberts

The success of the independent-particle model in describing atomic nuclei and other fermion systems is remarkable in that it ignores the strong interparticle correlations known to characterize such systems. Recent theoretical and experimental studies of atomic nuclei (particularly using electrons as a probe) have provided quantitative data on the effects of such correlations. Among the findings is that the occupation of orbits that are fully occupied in the nuclear shell model is actually only about 75%.

993 **Forthcoming articles**