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Artistic depiction of ultracold atoms (shown with atomic orbitals; blue/red indicate frozen/mobile internal states) loaded into an optical lattice, which mimics the

periodic environment experienced by electrons in solids. Probing atoms and molecules cooled to very low temperatures can tease out answers to some of the most intriguing questions in physics and chemistry. See the special section beginning on page 984. *Illustration: C. Bickel/Science*



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