Unlocking the Groove
The producer creates the records. The DJ spins the records. The dancer dances to the records. Layer upon layer, song upon song, beat upon beat. From techno music to house music to trance, electronic dance music (EDM) represents a broad range of soundscapes that have emerged during the last two decades. With his book, Unlocking the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music, assistant professor of music Mark Butler "creates a space in which EDM can be discussed as music." He uses new and traditional approaches to explore the genre’s musical, historical and social significance. It’s all about the experience of making and enjoying a music that’s not “locked into a single, restricted type,” he argues, but unfolds from the DJ’s deft handling of sound and beat on turntables and mixing boards. Butler says that “the sound is the force that drives people to dance…. The sound is what producers spend their time crafting…. The sound motivates DJs to play this particular record at this particular moment.” And the driving force in electronic dance music’s sound? Rhythm – which is not only heard but can be seen in the uniform movements of the dancing crowd.

Freedom to Fight
“No mature democracies have ever fought a war against each other,” writes Edward Mansfield, the Hum Rosen Professor of Political Science. “Consequently, conventional wisdom holds that promoting the spread of democracy will promote world peace and security.” It’s a belief dearly held by the American foreign-policy establishment and a maxim supporting President Bush’s strategy in Iraq. Unfortunately, argue Mansfield and co-author Jack Snyder in Electing to Fight: Why Emerging Democracies Go to War, the world is not so simple. In fact, they observe, the transition to democracy can give rise to violent conflict with neighbors, especially in states that do not have the strong political institutions needed to turn the wheels of democracy. States that attempt the changeover from authoritarian regimes to democracy without a strong judicial system, professional news media, organized political parties and other institutions of accountability are unlikely to complete the transition. “When these institutions are deformed or weak,” states Mansfield, “politicians are better able to resort to nationalist appeals, tarring their opponents as enemies of the nation, in order to prevail in electoral competition. The use of such appeals generally heights the prospect that democratization will stimulate the use of force.” It’s a pattern that dates back at least to the French Revolution, the political scientists say, and they marshal quantitative data and case studies to support their claim. The adage about mature democratic states not warring against each other might be true, but the way to “democratic peace,” Mansfield and Snyder show, is a perilous path.

How Things Melt
When ice cubes melt, the solid crystals turn to water. It’s pretty simple, right? Not really, says physics professor Arjun Yodh, the James M. Skinner Professor of Science. “Melting is one of the most fundamental phenomena in physics, and yet there are lots of things we don’t understand about it,” he says. “When ice heats up, molecules within the ice acquire more energy and jiggle around more, driving the transition from a solid to a liquid. This is true in part, but reality is richer and more complex.” To look deeper into that complexity, Yodh and his team made “atoms” that were big enough for researchers to see but also sufficiently transparent so they could look at what goes on inside the solid structure. “We created translucent three-dimensional crystals from thermally responsive colloidal spheres,” says doctoral student Ahmed Alsayed, which “behave like enormous versions of atoms for the purpose of the experiment.” The scientists observed with video microscopy that “premelting” occurred along the boundaries of imperfections in the orderly structure of crystals, especially where the patterns of the atoms shift. “Premelting was first revealed as an increased movement near defects in the crystal,” Alsayed explains. “These motions then spread into the more ordered parts of the crystal.” Yodh notes that understanding this effect could lead to the design of new materials able to withstand stresses at higher temperatures.
**Tawkin’ American**

In the musical *My Fair Lady*, phonetician Henry Higgins hid behind a pillar taking notes on the speech patterns of the Cockney flower girl Eliza Doolittle. From the way she spoke, the snooty professor could identify her place of birth. Penn linguist William Labov, the John H. and Margaret B. Fassitt Professor, doesn’t conduct field research from behind columns, nor does he hold to Higgins’ musical observation regarding the English language: “In America, they haven’t used it for years.” In his new book, *The Atlas of North American English: Phonetics, Phonology and Sound Change*, Labov, with coauthors Sharon Ash, G’74, Gr’82, and Charles Boberg, Gr’97, lays out the first coast-to-coast overview of the major dialects spoken and sound changes underway in the U.S. and Canada. There is no uniform accent of North American English, linguists say, only a variety of dialects that continuously undergo sound changes. “Most of the important changes in American speech are not happening at the level of grammar or language but at the level of sound itself,” he told a New York City gathering. *Atlas* includes color-coded maps and a CD that lets readers search and hear the variations on how people speak. “The biggest new sound change we found – in the Great Lakes area – spreads out over 80,000 square miles and 34 million people,” Labov says, “but no one is aware of it.”

**Formula for Happiness**

There may not be a magic formula for happiness, but Hans-Peter Kohler and Jere Behrman know a few equations that lay out parameters for mothers and fathers, wives and husbands. Kohler, an associate professor of sociology, and Behrman, the William R. Kenan Jr. Professor of Economics, along with a research scientist with the Danish Institute of Public Health, reported their findings in “Partner + Children = Happiness?” Simply correlating parenthood or partnership with happiness doesn’t take into account the possibility that happiness might be a genetic or personality trait or that people with happy dispositions may be more likely to get married and have kids in the first place or to be pleased with their choices. To control for those and other variables, the researchers tapped the Danish Twin Registry and surveyed almost 35,000 twins on their sense of well-being. Their analysis showed that marriage and children do have “appreciable persistent effects on happiness.” Individuals with partners reported greater happiness than those who are alone, with men deriving greater happiness from partnerships than women. Children directly contribute to the happiness of women. Having a first child is an important source of happiness for both partners, but subsequent children make women less happy and don’t much affect the well being of men. The greatest happiness for the greatest number, Kohler and Behrman’s study seems to suggest, is to marry and to have one child.