CREDITS (TOP TO BOTTOM): PIETER JANSZ. SAENREDAM, INTERIOR OF THE BUURKERK, UTRECHT, 1645 (COLLECTION OF THE KIMBELL ART MUSEUM, FORT WORTH, TEXAS); BÖHI *ET AL.*, *APPL. PHYS. LETT.* **97**, 51101 (2010)

PSYCHOLOGY

Religion and Togetherness

As academic psychologists have ventured beyond institutional and national boundaries, they have come upon an impressive influence of culture upon cognition. A canonical example of this is the relative tendency of East Asians to see visual scenes via a holistic mindset in contrast to the Western style of focusing on salient objects. Nevertheless, within these cultural categories, there is considerable intrinsic variation, which can be uncovered, for instance, in comparisons of Chinese and Japanese. Colzato *et al.* have looked at the linkage between religious upbringing and visual perception in three somewhat less heterogeneous populations—neo-Calvinists in the Netherlands, Roman Catholics in Italy, and Orthodox Jews in Israel—and found that adherents of each of these religions differed from atheists of the same cultural background. The Calvinists, whose tradition emphasizes the role of the individual, showed greater visual attentiveness to local features, whereas the big picture perspective was favored by Catholics and Jews, whose traditions stress social togetherness. — GJC

Cognition **117**, 10.1016/j.cognition.2010.07.003 (2010).

CANCER

Undesirable Consequences

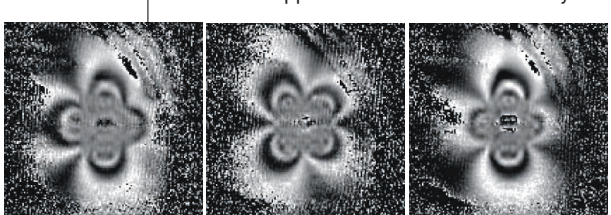
One reason cancer cells are so tenacious is that they have often lost the normal apoptotic regulators that would trigger cell death. Thus, treatments that reduce apoptosis would be expected to promote tumorigenesis. Surprisingly, Labi *et al.* and Michalak *et al.* found that mice made deficient in the proapoptotic protein Puma showed a lower incidence of lymphoma after exposure to ionizing radiation. Independently, the authors concluded that the explanation has to do with the effects of radiation on hematopoietic stem cells and their contribution to cancer. When normal animals were exposed to radiation, cells in the bone marrow or thymus died, which stimulated their replenishment through proliferation of hematopoietic stem cells. Multiple rounds of radiation made these animals more likely to develop DNA damage associated with excessive cell division, and this led to tumor formation. On the other hand, mice missing Puma exhibited diminished cell death in response to radiation, and hence suffered less replication stress on their hematopoietic stem cells. These results may have implications for cancer patients who undergo similar rounds of γ-irradiation or for therapeutic strategies using agents that act like Puma to stimulate cell death: Either treatment might have the potential to promote formation of a secondary cancer. — LBR

Genes Dev. **24**, 1602; 1608 (2010).

APPLIED PHYSICS

Mapping Microwaves

Microwave electronics find application across a number of fields such as radar, communications, and imaging. Integrated microwave circuits formed with superconducting components are currently being explored for applications in quantum electronics and on-chip atom manipulation. These latter applications tend to be extremely



sensitive to the circuit geometry and electric current distributions, both of which may often be complex. In this context, Böhi *et al*. have used a cloud of cold rubidium atoms to characterize and map out the magnetic component of a microwave circuit. The atoms are prepared in an initial state sensitive to local magnetic fields. As the atoms sense the effect of the magnetic field generated in the circuit, they drop out of their initial state. Absorption imaging with a laser beam can then probe the extent of the fall-out over a relatively large area, with high spatial resolution (down to micrometer length scales). The technique thereby provides a detailed snapshot of the magnetic component of the microwave field, allowing circuits to be optimized and redesigned for best performance. — ISO

Appl. Phys. Lett. **97**, 51101 (2010).

CHEMISTRY

Electron Turnstile

In artificial photosynthetic models, propelling excited electrons forward rather than backward can prove challenging. Meylemans *et al.* have designed a small molecular complex that elegantly tilts the odds toward forward progression by virtue of the cant of a single phenyl ring. The ring bridges a ruthenium ligand to a viologen acceptor, and tilts to varying degrees out-of-plane depending on its substitution pattern. Upon visible light absorption by the ruthenium center, the resulting excited state favors a lower cant angle, which facilitates electron transfer to the viologen through pi conjugation. After the transfer event, however, steric factors once again dominate, tilting the bridging ring back to inhibit the electron's return to the metal. Increasing the steric demand of the phenyl ring's subtituents raised the ratio of forward to reverse charge transfer rates from ~3 to 14. — JSY

J. Am. Chem. Soc. **132**, 10.1021/ja1055559 (2010).