

Random Walk

LASERS TO THE RESCUE In popular culture, lasers are typically used by the bad guys to menace superheroes. But at the Beckman Institute Laser Resource Center (ILLRC) at Caltech, scientists are using them to help search for light-powered catalysts that will help save the world from carbon emissions. The end goal? Find an efficient and economical way to convert solar energy into stored chemical fuel—much as a plant uses the sun to make food and oxygen via photosynthesis. In their lab, Harry Gray, the Arnold O. Beckman Professor of Chemistry, and Jay Winkler, director of the ILLRC, employ lasers, seen here, to excite a photosensitizer—a substance capable of transferring the energy of absorbed light—which can be seen in the glass tube. The information gathered from this excitation will help the researchers better understand the mechanisms involved in related chemical reactions and will contribute to the design of the improved photocatalysts needed for successful solar fuel production.