

## Cover Picture

**Todd Bosanac, Jaemoon Yang, and Craig S. Wilcox**

**The cover picture shows** a thought-provoking new approach to one of chemistry's oldest and most important challenges—the isolation of pure substances from complex homogeneous solutions. A product may be targeted for isolation by attaching its corresponding starting material to a latent phase tag. This latent phase tag (or “precipiton”) is designed to be very soluble in the required reaction solvent and thus supports homogeneous reaction conditions (1→2). After the reaction, the labeled product may be separated from a homogeneous mixture of solvent, excess reagents, catalysts, and nonlabeled by-products (4) through activation of the precipiton tag (4→5). Separation is effected because structural isomerization of the precipiton renders the precipiton-tagged product nearly insoluble in all solvents: only the product precipitates from the mixture (5). The product (6) is easily isolated by filtration or centrifugation and may be further purified by trituration. Sometimes it may be desirable to remove insoluble catalysts or by-products, or to replace the reaction solvent with another solvent (2→4) before activating the precipiton. This clever strategy for chemical separation based on tactical isomerization may be applied to reactions of any scale and can be automated. More about this method is reported by C. S. Wilcox et al. on p. 1875 ff.

