F. Dean Toste Wins 2008 Thieme-IUPAC Prize

The 2008 Thieme IUPAC Prize was awarded on 24 June 2008 to F. Dean Toste of the University of California, Berkeley, at the ICOS-17 conference in Daejeon, Korea. As the ninth recipient of the prize, Toste joins a select group of scientists under 40 whose research has had a major impact on the field of synthetic organic chemistry. The prize, which is awarded every two years and consists of Euros 5000, is sponsored by Thieme Publishers and IUPAC in collaboration with the editors of *SYNTHESIS*, *SYNLETT*, *Science of Synthesis*, and *Houben–Weyl*.

After completion of B.Sc. and M.Sc. degrees at the University of Toronto, Toste obtained his Ph.D. in 2000 from Stanford. His Ph.D. thesis received the prestigious ACS Nobel Laureate Signature Award. He joined the department of chemistry at Berkeley in 2002, and was promoted to associate professor in 2006.

Toste's research achievements include the almost unprecedented use of a high oxidation state dioxorhenium complex to catalyze reductions of aldehydes, ketones, and imines, an approach that is contrary to conventional wisdom. Nevertheless, he went on to elucidate a novel mechanism for the process and developed a stereoselective version.

His research has also led to a series of outstanding contributions in the use of late transition metal complexes in low oxidation states, most notably gold(I), as catalysts for advanced organic synthesis. The potential of gold catalysts has been over-looked for decades, and it is largely due to the excellent achievements of the Toste laboratory that this situation is now rapidly changing.

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Up for Discussion

Web-based education for students in developing countries should include programs that enable students to develop chemical sensors, software, and small, basic scientific equipment. Using sensors and software, developed for their own needs, students can start to measure environmental samples, pH changes in river water, trace metals in soil, and more. In this way, students can start to develop their knowledge by investigating scientific assignments; for example, by asking "What happens if we alter this parameter and keep the other one constant?" Or, they might be asked about chemical equilibrium: "What happens if we keep the pressure constant and alter the concentration or temperature?"

In general, experiments and small practical work applying advanced technology encourages the young people at schools and universities. Another way of making science subjects in general, chemistry in particular, more interesting and preferable by the young generation in the developing countries is to organize competitions. Students in schools and universities compete against each other. Various competitions could be prepared. It could be basic research, laboratory work, problem analysis, homework assignments, quizzes, etc. The winners will get reward for their outstanding merits. This type of scientific work stimulates enthusiasm by the students. The programme should give an impression that high school and university students are the leaders of tomorrow. The method helps to develop a scope for individual tangential investigation through their life. This is one of the methods among several others to prepare them to take responsibility in their future carrier. Therefore, a lot can be achieved in a lesson that incorporates web-based distance education.

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