

Three Share Nobel Prize in Chemistry

By MALCOLM RITTER

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-- Two Americans and a French scientist won the Nobel Prize in chemistry Wednesday for developing a chemical "dance" that makes molecules swap atoms, a process now used to create medicines, plastics and other products with more efficiency and less environmental hazard.

"What a great day for chemistry," declared an advocate of environmentally friendly "green chemistry," Paul Anastas of the American Chemical Society.

The \$1.3 million prize will be shared by Robert H. Grubbs, 63, of the California Institute of Technology; Richard R. Schrock, 60, of the Massachusetts Institute of Technology, and Yves Chauvin, 74, honorary director of research at the Institut Francais du Petrole in Rueil-Malmaison, France.

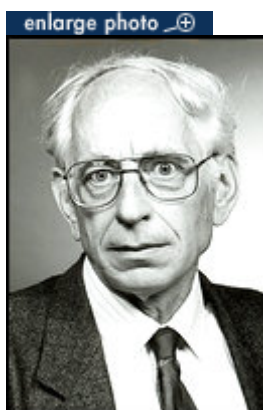
They explained and improved a process called metathesis, said the Royal Swedish Academy of Sciences in bestowing the prize. This swapping of atoms between molecules creates new substances, and the winners have turned it into one of the most important reactions in organic chemistry, the academy said. Organic chemistry deals with carbon compounds.

"Metathesis reactions are an important tool in the creation of new drugs to fight many of the world's major diseases, including cancer, Alzheimer's and AIDS," William F. Carroll Jr., president of the American Chemical Society, said in a statement. "They also are used to develop herbicides, new polymers and fuels."

To illustrate the atom-swapping process at a press conference in Stockholm, two Nobel Prize committee members invited two women assistants to dance, and switched partners.

Chauvin explained in 1971 how metathesis reactions work and what kinds of metal compounds can be used as catalysts to make the reactions happen. Schrock, in 1990, was the first to produce an efficient metal-compound catalyst for the process. Two years later, Grubb developed the first in a series of improved catalysts.

Their work has led to chemical-making methods that are more efficient and generate fewer hazardous wastes _ a major advance for "green chemistry," the academy said.



This undated photo provided by the Academies Des Sciences Wednesday Oct.5, 2005 shows French chemist Yves Chauvin. Chauvin and Americans Robert H. Grubbs and Richard R. Schrock have won the 2005 Nobel Prize in chemistry. The trio won the award for their development for the metathesis method in organic synthesis. (AP Photo/Academies des Sciences) (AP)

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"Metathesis is an example of how important basic science has been applied for the benefit of man, society and the environment," the academy said.

Anastas, director of the chemical society's Green Chemistry Institute, said the approach requires less starting material and less energy as well as creating virtually no waste to dispose of and fewer byproducts. "So all of those things that would seem like very environmental benefits also happen to make it tremendously more profitable," he said.

"This is a day that people will look back at and say there is a true recognition that the best chemists in the world are doing green chemistry, and that green chemistry is just a part of doing good chemistry," Anastas said.

Grubbs, the California scientist, said he was celebrating with a bottle of port.

"It's tasting pretty good right now," he told The Associated Press by telephone from Christchurch, New Zealand, where he was lecturing.

Winning the prize was "one of these things you never expect to happen in your career," he said. "You just keep doing science and see what happens."

"Science, especially chemistry, takes a long time to work its way through ... It's something we've been working on for 30, 35 years," he said.

He said a sports equipment company sells a baseball bat that is made using metathesis, and that the process is also used to convert seed oils into products that are normally made from petroleum.

Chauvin, in Tours, France, said he felt "embarrassment, not joy," and told reporters: "I had a quiet life, now I see that that is no longer the case."

He praised fellow winners Grubbs and Schrock.

"I knew that my research was important. I opened the way, but it is my American colleagues who also worked on my research who are enabling me to get this prize today," Chauvin said.

Schrock said he became interested in chemistry when he was given a chemistry set as an 8-year-old, and at first liked to "blow things up."

The Nobel is "obviously a tremendous honor," he said at a news conference at MIT. "Now I know dreams can come true."

... (from washingtonpost.com)

Selection From a Telephone Interview with Yves Chauvin

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– (Chauvin:) Oui, j'étais le premier et c'est pour ça que l'on m'a donné un prix parce qu'on a dit "Oui, c'est le premier qui l'a fait." Et puis voilà. Mais, depuis, je n'ai pas tellement travaillé dans ce domaine. Donc je n'ai pas beaucoup de choses à dire. Voilà.

/ (trans. :) Yes, I was first and that is why they gave me a prize, but since then I have not worked much within that field, so I do not have much to relate./

– But do you remember how it was when you did the work?

– Yes, yes. Sure.

– So you can tell this story.

– C'était un dimanche après-midi, dans mon appartement; il faisait mauvais temps. Et d'un seul coup j'ai dit "Ah, oui – c'est évident." Voilà. Aussi simple que ça. Mais ça arrive à beaucoup d'autres scientifiques que c'est dans les périodes de repos qu'on peut avoir de bonnes idées, quoi. Voilà.

/– It was a Sunday afternoon in my apartment, the weather was bad, and all of a sudden I said – Oh, yes, it's obvious. Voilà, as simple as that. But that happens to lots of others in science, that it is while you are resting that great ideas come to you, see? There you are./

... (from nobelprize.org)