

Robert Corriu (1934–2016)**Influential Silicon Chemist**

Robert Corriu, professor emeritus at the Université de Montpellier, passed away at the age of 82 on February 13, 2016. Corriu was an enthusiastic researcher, passionate about science, and, demanding but also both warm and straightforward in his relationships. He enjoyed most the daily discussions with his group members, as evidenced by his blackboard always crammed with chemical structures and equations.

Corriu was born in Port-Vendres, close to the French–Spanish border, on June 8, 1934. After obtaining excellent grades in his studies at the Faculty of Sciences of the Université de Montpellier, he obtained his Doctorat ès Sciences in 1961 with a thesis entitled “Structure de l’acide acétique et de ses dérivés en solution dans l’acide sulfurique. Mécanisme de la C-acétylation” (Structure of acetic acid and of its derivatives in sulfuric acid. Mechanism of C-acetylation) under the guidance of André Casadevall. Meanwhile, he became assistant at the Université de Montpellier in 1957 and maître-assistant in 1961. He was promoted to associate professor at the Université de Poitiers in 1964 and full professor in 1968. In Poitiers, he headed the Laboratory of Physical Organic Chemistry, where he started to take an interest in silicon chemistry. He developed elegant studies in stereochemistry and kinetics in order to understand the specificity of nucleophilic substitution reactions at silicon, and proved the presence of five- and six-coordinate intermediates, hence opening the field of hypervalent silicon.

Corriu returned to Montpellier as a full professor in 1969 and subsequently took different leading positions, including Vice-President in charge of science from 1978–1981. He became leader of the Laboratoire de Chimie des Organométalliques (Laboratory of Organometallic Chemistry), which became the French school of silicon chemistry. His work on the dynamic stereochemistry and the chemistry of hypervalent compounds has had a great impact in the field. In addition, he pioneered the chemistry of transition-metal–silane complexes with an early example of η^2 -silane complexes and the catalytic activation of silanes. In 1972, at the same time as Makoto Kumada, he reported a new reaction now known as the Kumada–Corriu coupling, in which a carbon–carbon bond is formed between an alkyl or aryl Grignard reagent and an alkyl or aryl halide in presence of molecular nickel

catalysts. This reaction was reported at the same time as, or before related coupling reactions that led to the award of the Nobel Prize to Heck, Negishi, and Suzuki.

In the mid-1980s, Corriu’s research took a new direction towards silicon-based materials. In collaboration with Rhône–Poulenc, he created a research unit devoted to the synthesis of silicon-based materials for the production of fibers towards, among others, aerospace applications. This research concerned polysilanes, polycarbosilanes, and polysilazanes for the production of silicon carbides and nitrides. The group used molecular chemistry as a framework for developing new materials, and Corriu followed this approach through the 1990s and up to the end of his career, by which time he was interested in the production of materials at the nanoscale. This area includes nanostructured materials, hybrid organic/inorganic materials, and a new family of mesoporous silicas, which led to many applications in the fields of catalysis, separation, and nanomedicine. The control of materials architecture at the nanoscale by using a molecular approach, and the development of various applications, is a strong and distinctive aspect of chemistry research in Montpellier, and a legacy of Robert Corriu.

Corriu published over 700 research papers and received many awards, including the “Grands Prix” both in organic (1969) and inorganic (1985) chemistry of the Société Chimique de France, the CNRS Silver Medal, and a number of international awards. He was elected to the French Académie des Sciences in 1991, and was a founding member of the French Académie des Technologies. He was also elected to the Polish Academy of Sciences in 1997. He was Officer of the Légion d’Honneur and a member of the Ordre national du Mérite, as well as Commandeur de l’Ordre des Palmes Académiques. In addition, Corriu had an encyclopedic knowledge of wine that he loved to share.

The name of Robert Corriu will always be associated with silicon chemistry. He was well-known worldwide, and was held in high esteem for his inspiring leadership and the warm relationships he established. He will be sorely missed by his family, friends, and colleagues.

Bruno Chaudret, Odile Eisenstein

Université de Toulouse, Institut National des Sciences Appliquées de Toulouse (France)



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