

Supramolecular Chemistry ... and Beyond

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Figure 1. Group photo taken in front of the ISIS building.

On the occasion of the 50th anniversary of Jean-Marie Lehn's research group, the symposium "Supramolecular Chemistry ... and Beyond" was held at the Institut de Science et d'Ingénierie Supramoléculaires (ISIS) in Strasbourg, France. The program featured a diverse set of eleven plenary lectures given by eminent scientists from supramolecular chemistry, physics, biology, and (culinary) art that attracted some 140 former group members, 33 accompanying persons, and 20 sponsors (Figure 1).

The opening ceremony took place at the Palais Universitaire, which provided inspiring surroundings to start the celebrations of the golden jubilee of the Lehn group. The evening's program consisted, amongst others, of speeches by Nicolas Giuseppone on behalf of the organizing committee, Alain Beretz, the President of the Université de Strasbourg, who reminded everyone that "this will happen only once", and the Mayor of Strasbourg. Jean-Marie Lehn finished the evening's speeches by wishing everyone "a very warm welcome" to Strasbourg in the true sense of the word and made a head start on his "Odyssée du laboratoire", where he described how the research activities evolved over the decades to build a bridge between physics and biology towards complex matter.

The next morning, Lehn continued his account of the group's achievements in chronological order (just like the photos of

the just over 400 co-workers, including 61 PhD students, 229 postdoctoral fellows, and 20 master's students that are always on display in the hallway of the laboratory); he focused on some selected topics and results ranging from those discovered in the early days up until some very recent breakthroughs.

Claude Cohen-Tannoudji (Paris), who shared the 1997 Nobel Prize in Physics, and was introduced by Thomas Ebbesen as the "Jean-Marie Lehn of physics", used the 55th anniversary of the first laser to review the trends and present new perspectives pertaining to the use of laser light for the manipulation of atoms. During his talk, he emphasized the importance of basic research, which in the long run might well lead to important applications; 55 years ago, nobody could have imagined just how many areas lasers can be used in today.

Next, Ben L. Feringa (Groningen) gave an account of responsive systems featuring recent applications in the fields of photopharmacology and self-assembly as well as a brand-new photoresponsive helicate that was dedicated to Jean-Marie Lehn and custom-made for this special occasion.

Jean-Pierre Changeux (Paris), who was formerly a biochemist and now a neurophysiologist, started by presenting his model of the "global neuronal workspace", characterized by long-range axonal connections, which opens up unprecedented opportunities for a new pharmacology of brain disease by allosteric modulation of transcription factors at critical stages during development.

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Hervé This and three-star chef Pierre Gagnaire (Paris) concluded the first day by illustrating molecular gastronomy, whilst creating the dish “Jean-Marie Lehn”, followed by “note-by-note cooking”, in which pure compounds are used rather than the traditional plant or animal ingredients.

The next day, the “Lehn-inspired” Fraser Stoddart (Evanston) showed how his group has used dimethyldiazaperopyrenium dications, originally reported by Jean-Marie Lehn et al., in an impressively diverse set of studies, including fundamental binding and recognition studies, as well as their application in the exfoliation of graphite to graphene and in supramolecular encryption; their encouraging anticancer activity is remarkable.

Manfred T. Reetz (Marburg and Mühlheim) reported on the directed evolution of stereoselective enzymes. Nowadays, one can create totally new binding sites, preferably using iterative saturation mutagenesis.

Pierre Corvol (Paris) continued from a more biological-medical perspective and explained how changes in drug discovery went hand in hand with changes in life. Over the past decades, the focus has shifted from common to rare diseases and back again, as illustrated by the treatment of high blood pressure.

In his talk, Takuzo Aida (Tokyo) focused on spectacular advances in supramolecular polymerization, reporting on the first noncovalent chain-growth polymerization that takes advantage of kinetically trapped monomers, which polymer-

ize in a controlled manner upon exposure to suitable initiators.

Peter Göllitz (Weinheim) continued the program with an insightful account on “50 Years of Chemistry Publishing (1980–2030)”, in which he described the transition scientific publishing has undergone from paper to the current virtual online environment.

Jean-Marie Lehn showed and commented on excerpts from a video recording of Robert B. Woodward’s lecture on “The Total Synthesis of Vitamin B₁₂” at Harvard University before giving the stage to Roald Hoffmann (Ithaca), who shared the 1981 Nobel Prize in Chemistry, and had the honor to finish the scientific program from an artistic angle with dashes of chemistry that has been a craft long before it became a science. The focus was on the color blue, the color of the sea and the sky, whose dye source changed over time from sea snails to plants, before finally being produced by BASF by chemical synthesis.

A visit to Jean-Marie Lehn’s place of birth, Rosheim, including a visit to the gorgeous Roman church followed by a delicious dinner provided a perfect finish to a fantastic weekend. Jean-Marie Lehn’s humble wish to celebrate the group and its scientific achievements rather than himself as a person has been fulfilled whilst recreating the special Lehnian atmosphere that all former group members will not have forgotten!

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