



Leopoldina
Nationale Akademie
der Wissenschaften

Leopoldina news

1/2015

Deutsche Akademie der Naturforscher Leopoldina –
German National Academy of Sciences

Halle, 9 February 2015

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Editorial

Dear members and friends of the Leopoldina,



in recent years, death and dying have become a subject of ever greater importance in public debate. The question of

whether the laws relating to euthanasia should be changed is a highly emotive one. Repeatedly, the need has been voiced to take full account of the scope of palliative care. This does not only refer to medical care but to the provision of psychosocial and spiritual care for patients and support for families and loved ones. Prevention and relief of suffering are at the heart of palliative care.

However, if palliative care is to ease patients' anxieties about a painful death, it must be dependable, high quality, and widely accessible. The Leopoldina and the Union of the German Academies of Sciences and Humanities have published a joint statement outlining the path towards such a standard of palliative care in Germany (see report on page 3). The academies are thus making an important contribution to a major current issue. Of course, the further development of palliative care in Germany is a long-term project. It will not be anywhere near complete by the time new legal stipulations on euthanasia come into force, as is expected this autumn. Improving palliative care will take time, as the necessary research infrastructure needs to be set up, new research projects initiated, and specialists trained in the psychosocial, spiritual and medical care of patients.

I sincerely hope this statement will contribute to the advancement of palliative care. In any case, both academies will continue to closely observe developments in this area in the years to come.

We wish you a thought-provoking read!

Jörg Hacker



At a panel discussion in Berlin, the Leopoldina and the Allensbach Institute presented a survey on public perceptions of synthetic biology.

Photo: David Ausserhofer

Getting people talking about science

Leopoldina and Allensbach present discussion paper

Talking about little-known research fields and new technologies is a big challenge for scientists and science journalists. How best to inform the public about complex topics such as synthetic biology? What obligations do scientists have? How will the public react to the new information? These are just a few of the questions that the German National Academy of Sciences Leopoldina and the Institut für Demoskopie Allensbach have been exploring. Their work has resulted in a discussion paper entitled "The formation of public opinion on synthetic biology".

Leopoldina and Allensbach conducted a representative survey to establish, for the first time, how much the German public know about synthetic biology and what their attitude towards it is. The research field was mainly chosen as the focus of the survey because it has not yet been the subject of intensive public debate. Speaking at the public presentation of the discussion paper on 28 January in Berlin, Prof. Renate Köcher, managing director of the Allensbach Institute, explained that this meant there were very few fixed opinions on the topic. The interviewees could therefore present synthetic biology in a variety of different contexts and ask interviewees to talk about the associations and opinions that spontaneously came to mind in

each case. Respondents were most interested in and open to the topic when it was put in a medical or economic context.

However, the discussion paper is not just intended to serve as the basis for advancing research communication on synthetic biology. Prof. Jörg Hacker ML, President of the Leopoldina, stressed that it also aims to inspire thought on how to talk to the public about other new technologies and young research fields.

The survey therefore also collected information on attitudes and knowledge about research in Germany in general, and about innovative technologies in particular. The results indicate that people have a great deal of faith in researchers' skills and in their sense of responsibility. Interest in individual research fields, however, varies widely. People are most interested in research topics that have strong links to everyday life.

The Institut für Demoskopie Allensbach surveyed a representative sample of the German population aged 16 and over. The survey included interviews with scientists, science journalists and members of the public. An English version will soon be available.

Survey and publication were funded by the German Federal Ministry of Education and Research. (jk)



The statement on palliative care in Germany was presented at the Federal Press Conference. From left: Hans-Peter Zenner, Martina Kern, Nils Schneider, Friedemann Nauck, Jörg Hacker, Nick Leifert.

Photo: David Ausserhofer

Academies demand better palliative care

Statement highlights options for action in health policy and research

In international comparison, there are still significant deficits in palliative care in Germany. These could best be corrected by means of sustainable development in research into palliative care. The statement by the German National Academy of Sciences Leopoldina and the Union of the German Academies of Sciences and Humanities published on 6 February lists the deficits in the current situation and highlights prospects and options for action. Decision-makers should take these into consideration in the coming years in order to establish continuous and high-quality palliative care for the long term.

Growing demands in the care of dying people

In recent years, death and dying have become a subject of ever greater importance in public debate. In surveys, 54 percent of respondents indicated that they have given thought to how they will die. Death and dying have played an important to very important role in the lives of 39 percent of those surveyed.

The most common causes of death in Germany are disorders of the cardi-

ovascular system and cancer, with over 500,000 deaths per year. The overwhelming majority of these people suffer from troublesome physical symptoms like pain or shortness of breath in the last phase of their lives. Also, they and their loved ones are usually burdened by psychosocial and spiritual problems.

In the face of life-threatening, terminal disorders, dying and gravely ill patients, their families and loved ones have an inalienable right to the best possible quality of life and, in relation to that, the best possible care. Palliative care has the goal of bringing about or maintaining that quality of life and care to the greatest possible extent. Palliative care is understood as a collective term for all activities directed at these patients. Prevention and relief of suffering are at the heart of palliative care, which involves the early detection and precise recording of all impairments, symptoms and areas of conflict in the physical, mental, social and spiritual realms.

The statement makes two fundamental diagnoses. First, palliative care in Germany continues to be patchy. Furthermore, German research in the area of

palliative care lags behind other countries in both quantitative and qualitative terms. With a view to this need to catch up and to the foreseeable increase in demand, the statement formulates three recommendations for action: (1) holistic, egalitarian and comprehensive palliative care in Germany; (2) science-based palliative care; and (3) consistent funding for that care.

Treatment in Germany should reach British standards

Germany should reach at least the same high level of palliative care as can be found in the leading countries in this area (the United States, the United Kingdom and Sweden). This requires a paradigm shift in palliative care, a move toward a science-based discipline, which in turn requires adequate funding for research on palliative medicine.

On 6 February 2015, the statement was discussed in Berlin with members of the German Bundestag and presented to media representatives at the Federal Press Conference. An English version will soon be available. (kh)

„Science set the stage“

Ruth Arnon, President of the Israel Academy of Sciences and Humanities, on 50 years of German-Israeli relations

This year marks the 50th anniversary of the official establishment of diplomatic relations between Israel and Germany. This important jubilee is not only being celebrated by politicians, but by scientists as well – after all, contacts between researchers and scientific institutions in the two countries played a major role in the rapprochement. In an interview with Leopoldina news, Ruth Arnon, President of the Israel Academy of Sciences and Humanities, looks back on those early bilateral scientific relations, and forward to the events of the jubilee year, which include two joint symposia between the Israel Academy and the Leopoldina.

Next year will be the 50th anniversary of diplomatic relations between Israel and Germany. How did science help to establish these relations?

Arnon: Science set the stage for bilateral relations between our countries and served as a precursor of normalization. Scientific collaboration between Israel and Germany began even before there were official diplomatic relations between the two countries.

In the late 1950s, Prof. Amos De-Shalit, a physicist at the Weizmann Institute of Science (elected a Member of the Israel Academy of Sciences and Humanities in 1962), met Prof. Otto Hahn ML, the first president of the Max Planck Society, while they were both at CERN in Geneva.

This led to the visit of a delegation headed by Prof. Hahn and the signing of a cooperation agreement between the Weizmann Institute and the Max Planck Society. This, in turn, paved the way for the establishment of the Minerva Program. It was only later, in the early 1960s, that Prime Minister David Ben-Gurion and Chancellor Konrad Adenauer began the process that resulted in the establishment of diplomatic relations.

Which role did research-institutes and academies play in building up the bilateral relations?

Arnon: The establishment of bilateral relations between scientific research institutes fueled the burgeoning cooperation



Ruth Arnon, President of the Israel Academy of Sciences and Humanities visiting the Leopoldina in October 2014 (center with Gunnar Berg, Vicepresident of the Leopoldina and Marina Koch-Krumrei, Head of International Relations Department).

Photo: Markus Scholz

between researchers of the two countries. The initial agreement setting up the Minerva Foundation was signed in 1964 and financed nineteen projects and a total of fifty-two scientists and researchers at the Weizmann Institute. Since then, the agreement has been renewed annually and has secured funding for roughly 2,000 projects in chemistry, physics, mathematics, and the biosciences in all Israeli universities. In 1986 the German-Israel Foundation for Scientific Research & Development (GIF) was founded to promote scientific and technological cooperation for joint research projects in the exact and life sciences, as well as the humanities. GIF projects require that Israeli and German researchers jointly submit proposals and serve together as PIs. This guarantees a very high level of scientific cooperation. Nobel Prize Laureate and Academy Member, Prof. Aaron Ciechanover, is a member of the Board of Governors.

Additional organizations on both sides are involved in collaborative research programs. On the German side these include, among others, the German Research Foundation and German Cancer Research

Center partnering with the Israeli Ministry of Science and virtually all of the research universities.

During the 2015 anniversary year, science will play an important role. Amongst other activities, the Israel Academy of Sciences and Humanities and the Leopoldina plan joint symposia. Which topics will they address?

Arnon: We anticipate that in 2015 our Academy will be co-sponsor with German counterparts a total of seven bi-lateral scientific events. Two of these will be with the Leopoldina: a workshop in Halle on neuro-degenerative diseases and a meeting in Jerusalem entitled: Chemistry – the Central Science. Other events will take place with the von Humboldt Foundation, the Berlin-Brandenburg Academy, the German Young Academy and Heinrich Heine University Düsseldorf. Our Academy will also sponsor a gala event marking the 50th anniversary, spearheaded by the Max Planck Society and the Weizmann Institute, which will take place in Tel Aviv in February 2015 with a scientific colloquium at the Institute on the following day.

Research for tomorrow's medicine

Former Leopoldina Fellowship Programme scholar Christine Beemelmans is investigating new natural substances for pharmaceutical applications.

Fighting infections and discovering active substances for new cancer medications and antibiotics – big medical challenges like these are what motivate Christine Beemelmans. At the age of 33, she is now leading her own group of young researchers at the Hans Knöll Institute (HKI), the Leibniz Institute for Natural Product Research and Infection Biology in Jena. Her interdisciplinary group of microbiologists and chemists is seeking new natural substances for the pharmaceuticals of the future. One of the things that have helped Beemelmans on her career path was a Leopoldina scholarship.

Beemelmans has always had an enthusiasm for chemistry. However, her apprenticeship as a chemistry laboratory technician, which she started upon leaving school, was not the right thing for her. “With my passion for experimentation, I wasn’t suited for the profession of lab technician,” she laughs. What appeals to her is the whole process of having an idea, formulating a hypothesis, and then testing it to see if it is correct. She therefore discontinued her apprenticeship, studied chemistry in Aachen, and obtained initial international experiences through research internships in France and Switzerland and during a lengthy period spent working at RIKEN in Japan.

In her doctoral thesis, Beemelmans developed a method that allows total synthesis of the strychnine molecule to be performed in a few short steps. In theory, her method should not have worked. But she wanted to know for sure, so she did what she loves best – experiment. The attempt was successful: “For quite a while, we were the group with the shortest synthesis!” she says.

After completing her dissertation, she went back to Japan. Then the reactor accident in Fukushima happened, and at almost the same time she was granted a Leopoldina scholarship to go to the US as a post-doc at the prestigious Harvard Medical School in Boston. There, she was able to spend two years researching and laying the foundations for her own research career. “The scholarship gave me independence; that was the most im-



Christine Beemelmans in her laboratory at the Hans Knöll Institute in Jena.

Photo: HKI Jena

portant thing,” she emphasises. Financial freedom allowed her to have freedom for her research as well. The young scientist was not entirely dependent on assignments from the leader of the working group; instead, she could work on her own ideas and goals.

That is especially important for post-docs, because it’s the time when the foundations are laid, when they have the chance to develop research ideas, conduct experiments, collect data. This allows them to present their own projects and initial research findings, and thus to seek a permanent position. If post-docs don’t have this kind of independence, everything gets delayed. “The Leopoldina scholarship facilitated that for me; I had an enormous advantage,” says Beemelmans.

She was still in the United States when she got the call from Jena, and her group of researchers has now been working for half a year. Her team is analysing interac-

tions among bacteria, fungi and insects in order to discover new natural substances. For example, they want to understand why termites infested with a particular fungus do not get sick. Their theory is that the bacteria involved produce substances that kill other, harmful fungi and thereby keep the system healthy. “If we can find out what those substances are, we might be able to use them to kill our own pathogenic fungi“, says Beemelmans. At the HKI, she has ideal conditions for her research. As soon as her group identifies a new substance, it is tested on other fungi, antibiotic-resistant bacteria, and cancer cell lines.

Beemelmans leaves her doctoral candidates plenty of room to experiment. “The best ideas come when people do things themselves,” she says. “Right now, the thing I say most often is ‘Just try it out!’” Beemelmans herself knows just how far that can take you. (cwe)

THE LEOPOLDINA FELLOWSHIP PROGRAMME

The Leopoldina awards scholarships to outstanding young German scientists who wish to work at prestigious foreign research sites as well as post-doctoral candidates from Switzerland and Austria who are doing re-

search in Germany. Follow-up support for scholarship recipients, a programme for returning fellows and a mentoring programme are also part of the Fellowship Programme. (jk)

What is “theory”?

Lecture and symposium, Class IV – The humanities and social and behavioural sciences

Thomas Kuhn’s theory of scientific revolutions received a great deal of attention from scientists and sparked both agreement and fierce criticism. In her Leopoldina lecture, “Kuhn’s theory of scientific revolutions in the modern history of science”, Prof. Ursula Klein ML, a historian of science and a researcher at the Max Planck Institute for the History of Science in Berlin, addressed what has become of this theory half a century after its publication. Her lecture opened the symposium of Class IV – The humanities and social and behavioural sciences, which took place the next day, 27 November, under the title “What is ‘theory?’”.

The two core assertions of Kuhn’s theory state that repeated short phases of in-depth restructurings or “scientific revolutions” occur after long phases of knowledge production, and that these restructuring processes display structural characteristics similar to those of political and social revolutions. Kuhn sought to establish a universal structure for scientific development. Although the theory helped to openly address the gap between the theoretical ideal and the less rational reality of science, from the contemporary perspective it is viewed as a failure.

Lecture on game theory modelling

Prof. Werner Raub ML of Utrecht University opened the symposium the next day with his lecture “Trust in social and economic interactions: Game theory modelling and empirical tests in and outside the laboratory”. With regard to the question at the heart of the symposium, “What is ‘theory?’”, Prof. Raub pointed out that within this discussion, attention must also be given to the connection between theory and empirical research. As an example, he discussed how trust games are played and demonstrated the complexity of the decision-making process in which both the subjects in the game and society as a whole are involved, as part of social and economic exchange.

In his lecture “Sensory systems are hypothesis-generators – historical thinking and the neurosciences”, Prof. Dieter Langewiesche ML of the University of Tübingen discussed the difficulties that

The new members of Class IV



The new members of Class IV are presented with their membership certificates: (from left) Prof. Clemens Kirschbaum ML (Dresden), Prof. Kai A. Konrad ML (Munich), Leopoldina Secretary-General Prof. Jutta Schnitzer-Ungfug (Halle), Prof. Andreas Hüttemann ML (Cologne), Prof. Irmela Hijiya-Kirschner ML (Berlin), Prof. Michael Lackner ML (Erlangen), Prof. Bettina Rockenbach ML (Cologne), Prof. Marcel Weber ML (Geneva), Prof. Michael Frese ML (Lüneburg), Leopoldina President Prof. Jörg Hacker ML (Halle), Prof. Hans-Werner Sinn ML (Munich).

Photo: Markus Scholz

arise when different disciplines and their theoretical approaches collide. Using the conflicts between historians and neuroscientists as an example, Prof. Langewiesche described how the insights of neuroscience can put historians in a miserable position, stating that the challenge lies in establishing a way for the traditional methods of the two disciplines to co-exist while preserving the old tools of the trade.

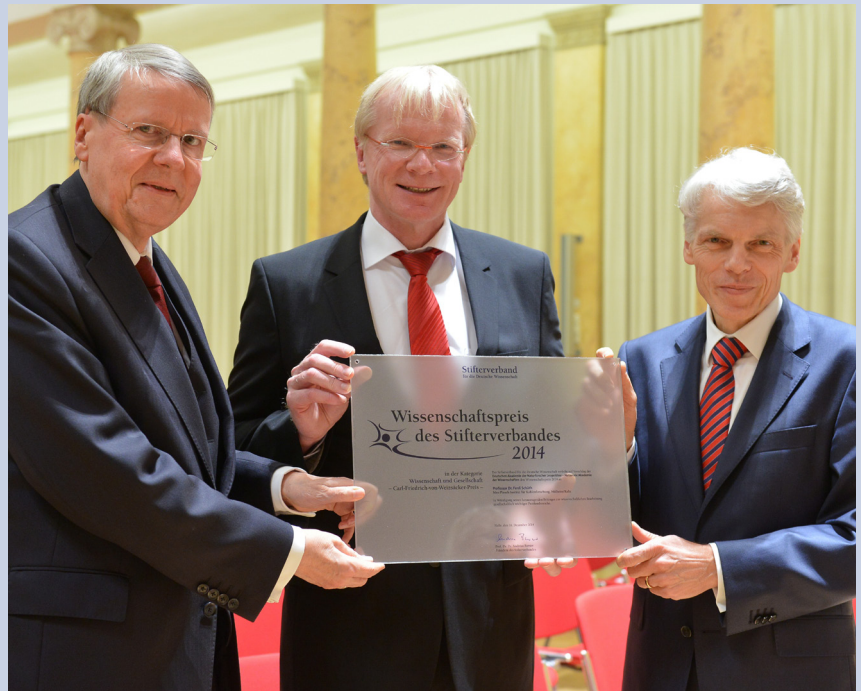
In his lecture “Theories, models, data: On the role of theories in the theoretical disciplines”, Prof. Martin Carrier ML of Bielefeld University described the inadequacy of theories alone for scientific research. Theories can help explain and understand many phenomena, he said, but the significance of particular theories

is decreasing due to model debates and data-driven research.

A need for reflection about theory-based research

Theories make it possible to identify influential variables, but they need to be supplemented by experience. This means that the specific is gaining new importance vis-à-vis the universal. In the symposium’s concluding lecture, “Theory-led and phenomenon-led research”, Prof. Klaus Fiedler ML of Heidelberg University emphasised the importance of reflecting on theory-based research for the greater scientific good so that informative and exciting research can continue to be conducted. (asc)

Leopoldina Christmas Lecture



The Leopoldina Christmas Lecture was held on 16 December 2014 in Halle, and saw two members of the Leopoldina receive special merits. Nobel Prize winner Paul Crutzen (left) was named an honorary member of the Academy, while Prof. Ferdi Schüth (right with Leopoldina President Prof. Jörg Hacker and Stifterverband President Prof. Andreas Barner) received the 2014 Carl Friedrich von Weizsäcker Award from the Stifterverband für die Deutsche Wissenschaft. This award honours Schüth's achievements in the field of energy research as well as his efforts to communicate his research findings to the public. The joint Leopoldina and Stifterverband prize, which is worth €50,000, is awarded every two years to researchers who have shown outstanding dedication to providing science-based advice to policymakers and the public. Ferdi Schüth gave the Leopoldina Christmas Lecture entitled: "Unser zukünftiges Energiesystem: Herausforderungen an die Wissenschaft" ("Our future energy system: challenges for science").

jk/Photo: Markus Scholz

European trends in policy advice

"Governance of Science" workshop series on the relationship between research and policy

The development of relationships between science and policymaking is a key question for our knowledge-based society. In recognition of this fact, the Leopoldina partnered up with the Volkswagen Foundation to create a new workshop series entitled "Governance of Science: Strategies for the 21st Century".

Historical development of science-based advice

Strategic questions of relevance to the provision of science-based policy advice and the establishment of the right political framework for science require analysis by international experts. A first impression of the complexity of this task was provided at the kick-off event "Science-based

Policy Advice and Evidence-based Public Policy", held on 24 November 2014 at Schloss Herrenhausen in Hanover. Historian Prof. Alexander Nützenadel and sociologist Prof. Rudolf Stichweh explained how the role of scientists in policy advice has developed throughout history. On the question of whether common trends exist between European countries when it comes to science-based policy advice, political scientist Prof. Andreas Busch and anthropologist Prof. Steve Rayner stressed that, on the contrary, there is an almost irreconcilable variety of approaches.

Psychologist Prof. Gerd Gigerenzer ML discussed the question of how statistical information should be communicated in order to facilitate rational decisions.

The advisory activities of economists were also a focus of the discussions.

Correct interpretation of research findings

This topic was discussed by Prof. Christoph M. Schmidt, Chairman of the German Council of Economic Experts, with Swiss economist Prof. Gebhard Kirchgässner ML.

Throughout the course of the workshop, it became increasingly clear that transparency with regard to the origin and validity of scientific statements could significantly help to prevent their misinterpretation in the process of providing policy advice.

(art/yb)

Papers on antibiotics and fracking

EASAC gives its view on two topics of Europe-wide importance

The development of new antibiotics to combat bacterial pathogens is a global challenge. In a panel discussion on 3 December 2014 in Brussels, the European Academies Science Advisory Council (EASAC) presented a new statement with the title “Antimicrobial drug discovery: greater steps ahead”. With the participation of former Chief Scientific Advisor to the President of the European Commission, Prof. Anne Glover, and Chief Medical Officer of the United Kingdom, Dame Sally Davies, scientists, representatives from industry and politicians discussed important aspects and necessary measures in research, politics and the economy.

In November, EASAC had published a statement on a second issue that is currently a hot topic of debate – fracking. The publication “Shale gas extraction: issues of particular relevance to the European Union” attracted media attention across Europe. In view of the current



The development of new antibiotics to combat bacterial pathogens is a global challenge.

Photo: Photographee.eu - Fotolia.com

energy resource situation, fracking is playing an increasingly important role in energy production although it is a controversial means of extracting resources. In its publication, EASAC focuses on three main problem areas: high population density and water use, the release of methane, and how the public are informed about and included in this topic. (iv)

■ THE STATEMENTS CAN BE FOUND HERE

Meeting of science academies from around the world

The first meeting of the presidium of the new global network of all science academies, InterAcademy Partnership, took place in November 2014 at the Académie des sciences in Paris. InterAcademy Partnership brings together the existing academy networks InterAcademy Panel, InterAcademy Council and InterAcademy Medical Panel with the goal of creating better synergies for global science-based policy advice.

As well as the three existing global networks, regional academy networks AASSA (Asia), EASAC (Europe), IANAS (America) and NASAC (Africa) also participated in the meeting. Topics for discussion included the development of the network, the drafting of a strategic plan, and identifying possible addressees for the new network at the global political level. (amg)

Election of new Section representatives and Senators

In December 2014 new Senators and Section representatives were elected in Sections and Sub-sections of the Leopoldina as scheduled. In Section 4 (Chemistry), Prof. Michael Veith of Saarbrücken was elected as representative of Sub-section 4.1 (Inorganic Chemistry). Prof. Joachim Sauer of Berlin is the new representative

of Sub-section 4.2 (Physical Chemistry), and Prof. Gerhard Erker of Münster was elected as representative of Sub-section 4.3 (Organic Chemistry).

In a second ballot, members of the Chemistry Section elected Prof. Erker as Senator for the entire Section and Prof. Sauer as Deputy Senator. The Austrian

Regional Section elected Prof. Wolfgang Baumjohann of Graz as Senator of the Regional Section for a second term, and Prof. Wolfgang Lutz of Laxenburg as Deputy Senator.

Prof. Martin E. Schwab of Zurich was elected the new Senator of the Swiss Regional Section. (jb)

People

Deceased Members

■ **Max Birnstiel ML**
12 July 1933 – 15 November 2014 |
Männedorf (near Zurich)
Genetics/Molecular Biology and
Cell Biology

Molecular biologist Max Birnstiel's lifetime achievements in science include being the first person to isolate the eukaryotic gene and characterising the regulatory mechanisms that can be used to switch

genes on and off. His work provided the impetus for eukaryotic cell research. His achievements in these fields earned him membership of the Leopoldina in 1987.

■ **Helmut Böhme ML**

7 June 1929 – 2 January 2015 | Aschersleben

Genetics/Molecular Biology and Cell Biology

Helmut Böhme's research focused on the modes of action of extrachromosomal genetic elements in bacteria. He investigated genetic aspects of repairing DNA damage, with a particular focus on the relationship between defective repair processes and the emergence of spontaneous mutations. He was elected a member of the Leopoldina in 1969.

■ **Anselm Citron ML**

27 March 1923 – 8 December 2014 | Karlsruhe

Physics

Physicist Anselm Citron participated in the construction of the CERN laboratory. His tasks included radiation protection calculations, construction planning, and the shielding of the linear accelerator entry point. Later on in his career he conducted experiments with mesons and tackled problems of high-current technology and fusion. Citron was appointed to the Leopoldina in 1984.

■ **Carl Djerassi ML**

29 October 1923 - 30. January 2015 | San Francisco

Chemistry

Carl Djerassi has published over twelve hundred articles and seven monographs dealing with the chemistry of natural products (steroids, alkaloids, antibiotics, lipids, and terpenoids), and with applications of physical measurements (notably optical rotatory dispersion, magnetic circular dichroism, and mass spectrometry) and computer artificial intelligence techniques to organic chemical problems. In medicinal chemistry he was associated with the initial developments in the fields of oral contraceptives and antihistamines. Djerassi was appointed to the Leopoldina in 1968.

■ **Jacques Friedel ML**

11 February 1921 – 27 August 2014 | Paris

Physics

Elected as a member in 1976, Jacques Friedel's main research areas were electrons in metals and alloys and the theory of dislocation and its applications to understanding physical phenomena. A dis-

location is a lattice defect within a crystal structure. The term is used to describe, among other things, the microscopic plastic deformation of metals.

■ **Arnulf Fritsch ML**

21 December 1926 – 23 September 2014 | Vienna

Surgery, Orthopaedics, Anaesthesiology

Arnulf Fritsch conducted research into biliary tract, pancreatic and endocrine surgery. He placed special emphasis on a precise surgical technique and a patient-oriented focus. His anatomy-oriented preparation technique is held in particularly high regard. Fritsch trained many surgeons throughout his career. It was for this work that he was elected to the Leopoldina in 1988.

■ **Rudolf Hoppe ML**

29 October 1922 – 24 November 2014 | Gießen

Chemistry

During his scientific career, chemist Rudolf Hoppe successfully produced and determined the crystal structure of binary and ternary oxides, sulphides and fluorides of a total of 30 metals. He also synthesised Xenon difluoride. The Leopoldina elected him a member in 1969.

■ **Hubert Markl ML**

117 August 1938 – 8 January 2015 | Constance

Organismic and Evolutionary Biology

Hubert Markl contributed to the theory of evolution of highly differentiated social systems through research into hymenoptera. He also conducted work into the equilibrium organs of social insects and how these organs affect orientation. Through his research, he discovered flaws in the geomenotactic orientation of ants. He was elected a member of the Leopoldina in 1985.

Newly elected Members

■ **Artemis Alexiadou ML**, University of Stuttgart, Institute of Linguistics (Cultural Sciences Section)

■ **Maria Carla Galavotti ML**, University of Bologna, Department of Philosophy and Communication (Philosophy of Science Section)

■ **Anne Maas ML**, University of Padua, Professor of Developmental Psychology and Socialisation (Psychology and Cognitive Sciences Section)

■ **Hans Rott ML**, RUniversity of Regensburg, Institute of Philosophy (Philosophy of Science Section)

■ **Dagmar Schäfer ML**, Berlin, Director at the Max Planck Institute for the History of Science (History of Science and Medicine Section)

■ **Peter Strohschneider ML**, Ludwig Maximilian University of Munich, Professor of German Medieval Studies, President of the German Research Foundation (Cultural Sciences Section)

■ **Paul Julian Weindling ML**, Oxford Brookes University, Department of History, Philosophy and Religion (History of Science and Medicine Section)
Neri durch.



Leopoldina

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Abbreviations:

ML = Member of the Leopoldina
Abkürzungen: ML = Mitglied der Leopoldina