



SCS
Swiss Chemical
Society

Community News

www.scg.ch

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SWISS CHEMICAL SOCIETY NEWS

Invitation to the Virtual SCS General Assembly 2021



The Board of Directors invites all members of the Swiss Chemical Society and the delegates of its associated societies to join the 31st General Assembly. Due to the uncertainty that comes along with the Covid-19 pandemic, we will again organize the assembly as a virtual event via video conference.

SCS General Assembly 2021

April 15, 2021, 13.15–14.00h (Lunch break of the SCS Spring Meeting 2021).

Provisional Agenda

- Welcome and approval of the agenda
- Accepting online vote counting
- Minutes of the 30th General Assembly from June 24, 2020 (published in CHIMIA 7-8/2020, A635)
- Annual report 2020 (published in CHIMIA 1-2/2021)
- Financial statement 2020 incl. audit report
- Discharge the Board
- Elections as member of the Executive Board (ExB):
 - Christian Bochet as new President as of 2022
 - Yves Auberson as new Vice President as of 2022 and as member of the ExB as of May 2021
 Elections as member of the Board of Directors as of May 2021:
 - Leslie Fendt, Roche
 - Maud Reiter, Firmenich
 - Corinne Jud, Agroscope
- News and strategic projects
- Outlook 2021/2022
- Varia

Motions to the assembly can be submitted until March 31, 2021 to info@scg.ch. A summary of the financial statement 2020 will be published on the website after the formal audit.

The EuChemS Year Book 2020 is now available online!



2020: a year to remember or a year to forget?

The 2020 Yearbook is a form of a EuChemS annual report which looks back at the activities and achievements carried out by the European Chemical Society and its community over the year. It also offers an insightful overview of EuChemS Professional Networks and

their work. Divided between chapters, the Yearbook explores the 2020 initiatives and actions in policy areas, meetings, events and webinars, as well as awards and the activities related to the 50th anniversary celebration of the European Chemical Society. Link to the year book: euchems.eu/about-us/year-books/

Clariant signs catalysis research partnership with ETH Zurich



Clariant, a focused, sustainable and innovative specialty chemical company, has signed a cooperation agreement with ETH Zurich to support research in catalysis and sustainable chemistry with a significant financial contribution over an initial period of ten years. The goal of the partnership is, firstly, to advance the understanding of catalyst properties

– from nano- to macroscale – and their performance. Secondly, together with the ETH Foundation, Clariant will sponsor and collaborate in fundamental chemical research projects, promoting talented ETH scientists and students.

Hans Bohnen, member of Clariant's Executive Committee, commented, "We are honored to announce our research agreement with the prestigious ETH Zurich. The partnership, like those with other academic institutions, underscores our commitment to fostering innovation and R&D to develop groundbreaking products and solutions that add value to people, industries, and the environment."

Source: clariant.com

Review: Digital 5th European Chemistry Partnering (ECP), Feb 24–26, 2021



More than 350 participants from 30 countries met for the digital 5th European Chemistry Partnering (ECP)

In more than 1,200 online partnering conversations as well as numerous flash sessions, the traditional spirit of the largest speed dating event of the European chemical industry came alive again.

Corona notwithstanding: The 5th ECP lives – and is probably even more important than ever. The digital three-day event brought together participants from business and academia as well as from all corners of the world to make contacts, initiate collaborations and discuss the major substantive challenges of the future.

As in previous years, the 5th ECP was all about business networking and partnering. In more than 1,200 pre-arranged online meetings, SMEs met with large companies, investors, and service providers. And once again this year, numerous representatives of start-ups were present, making the discussions even more interesting. In several flash sessions, many participants introduced themselves in one-minute pitches, thus initiating the

informal networking. The online trade fair accompanying the 5th ECP had already opened on February 20. During the seven days of the exhibition, more than 400 visitors took advantage of the free opportunity to visit the virtual information booths of numerous companies.

The focus of the discussions was on global cooperation and the 17 United Nations Sustainable Development Goals (SDGs): In addition to the development of the Circular Economy, the high-profile opening panel focused on new approaches in the area of finance for young, innovative and fast-growing chemical companies. In further lectures and several workshops, urgent questions concerning plastics were discussed and innovative solutions, like in the field of plastics recycling, were presented. Source: ecp2021.com

A Warm Welcome to Our New Members!



Period: 26.01.2021–05.03.2021

Mariantsoa Andriamalala, Geneva – Cornelia Angehrn, Herrliberg – Tristan Blandenier, Auvornier – Dib Chakif, Bern – Zoltán Dienes, Gland – Paul Dutheil, Villigen – Marc Fernandez, Glattbrugg – Takuji Fujii, Lausanne – Jasmine Furter, Basel – Melanie Giger, Seewen – Ksenia Groh, Dübendorf –

Fabienne Hoffmann–Emery, Weil am Rhein – Yuya Kakiuchi, Zurich – Moheb Karbasiyoum, Zürich – Marino Kriftner, Zurich – Agnieszka Ladosz, Allschwil – Jakob Lang, Schlieren – Marc Lehner, Allschwil – Mikail Levasseur, Zürich – Patrik Locher, Liebefeld – Szabolcs Makai, Zürich – Florian Marqueten, Marly – Jacopo Millul, Basel – Daniel Mueller, Schuepfen – Peter Nesvadba, Marly – Dominique Plancherel, Bex – Florian Ruepp, Uster – Laura Slappendel, Zürich – Daria Sokolova, Basel – Georg Tiebel, Aarau – Laura Alicia Völker, Zürich – Ivan Zivadinovic, Villigen.

HONORS, AWARDS, APPOINTMENTS

Urs Burckhardt, Sika, is appointed as an individual member of SATW



Dr. Urs Burckhardt, Sika AG, is appointed as an individual member of SATW in recognition of his research achievements, inventions and product innovations in the field of reactive polymers and cementitious building materials as well as his commitment to close cooperation and networking between industry and academia.

Urs Burckhardt graduated as a chemist from the ETH Zurich in 1993, where he received his doctorate in organometallic chemistry under Prof. A. Togni in 1997. He continued his studies from 1997 to 1998 at UC Berkeley (USA) with Prof. D. Tilley. In 1998 he took up a position as development chemist for adhesives at Sika AG in Zurich and in 2005 became head of the group-wide research activities on reactive polymers. Since 2013, he has been head of research and analytics at Sika Technology AG, temporarily also in charge of product development for coating materials and for concrete admixtures. During this time, he has implemented a number of chemical product innovations from the laboratory to industrial scale and is the author of numerous

patents on topics such as catalysis, polymer crosslinking, and the use of polymers.

Urs Burckhardt has been an active SCS member since 1971. We would like to take this opportunity to thank him for his loyalty and congratulate him on his SATW individual membership.

The complete list of all appointed individual members 2021 of SATW is available on the website.

Source: www.satw.ch

Prof. Michael Grätzel, EPFL, awarded the 2021 Frontiers of Knowledge Award in Basic Sciences



This year, the Frontiers of Knowledge Award in the category of Basic Sciences has gone to **Prof. Michael Grätzel** at EPFL Lausanne and **Prof. Paul Alivisatos** at the University of California, Berkeley. The Award celebrates “their fundamental contributions to the development of new nanomaterials already in use for the production of renewable energies and in latest-generation electronics.”

The awarding committee’s citation reads: “Graetzel’s groundbreaking work includes the invention of a dye-sensitized solar cell named after him. Alivisatos made pioneering contributions in using semiconductor nanocrystals for energy and display applications. Their discoveries have found applications in renewable energy and optoelectronics.”

The annual BBVA Foundation Frontiers of Knowledge Awards cover eight categories, each awarded 400,000 euros. The categories span basic, natural, and social sciences and technology, climate change and ecology and conservation biology, contemporary music and opera.

Source: actu.epfl.ch

Dr. Margaret Faul Award 2021 for Prof. Cristina Nevado, University of Zurich



Science of Synthesis and Thieme Chemistry are delighted to announce that the Dr. Margaret Faul Women in Chemistry Award Winner 2021 is **Prof. Cristina Nevado** from University of Zurich who is acknowledged as a rising star in the field of synthetic organic chemistry. She is recognized as an outstanding recipient of the award due to the breadth and diversity of her work which spans the development of new catalytic methods and elucidation of underlying mechanisms, important contributions in the synthesis of medicinally relevant natural products, and development of bioactive chemical probes.

The award will be presented to her at the European Symposium on Organic Chemistry Virtual Mini Symposium on Monday, July 5, 2021.

Source: thieme.de/en/thieme-chemistry

Lelio Orci Prize 2021 to Prof. Jean Gruenberg, University of Geneva



Prof. Jean Gruenberg, Honorary Professor at the Faculty of Science of University of Geneva, Department of Biochemistry, is the winner of the Lelio Orci 2020 Prize for his work on the biology of cell membranes and the discovery of the principles responsible for the biogenesis and dynamics of endosomal membranes. His research has indeed

modified the understanding of endocyte transport, an essential mechanism involved notably in the fundamental processes of cell structure and function, but also in certain metabolic functions such as cholesterol or viral infections.

The Lelio Orci Prize has been awarded annually since 2015 for outstanding work in the field of fundamental cell biology. It is awarded by the Lelio Orci Fund, hosted by the Faculty of Medicine of the UNIGE, and presented by the LS² Society.

Source: unige.ch/sciences/chimie

Prof. Mohammad Khaja Nazeeruddin, EPFL, honored with the 34th Khwarizmi International Award in Fundamental Sciences.



The 2020 Khwarizmi International Award (KIA) has been given to **Prof. Mohammad Khaja Nazeeruddin** at EPFL Lausanne “for his contributions to Perovskite Solar Cells research.”

Perovskite Solar Cells (PSC) are a new paradigm in renewable energy because of their high efficiency reaching over 25%. The Perovskite Solar Cells’

high efficiency is due to their excellent optoelectronic properties, which were optimized by various cations and anions with different ratios.

The KIA is a research award given annually by the President of Iran. The awardees include ten senior researchers and ten young researchers selected by the Iranian Research Organization for Science and Technology (IROST) to honor “individuals who have made outstanding achievements in research, innovation and invention, in fields related to science and technology”.

Source: actu.epfl.ch

SYNLETT Best Paper Award 2020 for Sereina Riniker and research partners from ETHZ and Givaudan



The SYNLETT Best Paper Award 2020 is being awarded to Philip Kraft, Quanrui Wang, **Sereina Riniker** and co-workers for their article A New Family of Rigid Dienone Musks Challenges the Perceptive Range of the Human Olfactory Receptor OR5AN1. The work was a joint effort between both industrial and academic laboratories in Switzerland

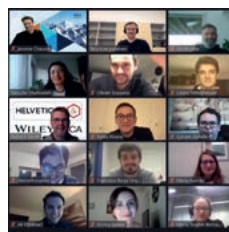
(Givaudan Fragrances S&T, ETH Zurich) and in P. R. of China [Givaudan Fragrances (Shanghai) Ltd, Fudan University].

Benjamin List, Editor-in-Chief of SYNLETT, stated: “This paper describes the design and discovery of new musk odorants. These targets are accessed using equally elegant and practical

chemical synthesis methods. Moreover, the paper also contains a careful QM/MM study to investigate binding of the designer scents to a human musk receptor. Overall, this is truly beautiful work encompassing scent design and evaluation, an impressive synthetic approach, and a thorough computational study.”

Source: chab.ethz.ch

Winners of the Helvetia Presentation Awards at the French Swiss Photochemistry Symposium 2021



On January 20–22, 2021, the SCS Photochemistry Section in collaboration with the Photochemistry, Photophysics and Photosciences Subdivision (SP2P) of the Chemical Society (SCF) of France organized the French Swiss Photochemistry Symposium, an event to promote the exchange within the photochemistry community in Switzerland and France.

Helvetia sponsored the best presentation award program and we are happy and proud to announce the two winners:

The Best Oral Presentation award goes to **Zoltán Szakács**, University of Geneva (Group of Prof. Eric Vauthey) and the Award for the Best Flash Talk goes to **Salome Püntener**, EPFL Lausanne (Group of Prof. Pablo Riveira Fuentes).

Source: scg.ch

Best virtual Poster Presentation Award at the DMCCB Basel Symposium 2021



The one-day symposium organized by the Swiss Chemical Society, Division Medicinal Chemistry and Chemical Biology, was dedicated to “Targeting RNA by small Molecules” and was held for the first time as an online event.

Illustrating the progress in the field of RNA targeting drugs will be of high interest to students in chemistry, pharmacy, biology, and to the medicinal chemistry and chemical

biology community at large. The target audience was therefore composed of scientists from pharmaceutical and biotech industries, as well as colleagues from academia.

An interactive virtual poster session, a discussion forum and a virtual exhibition over lunch, all together provided a virtual platform for networking. The virtual poster presentations are still available on the website.

This year we received mostly, if not only, outstanding posters which made the selection particularly complex. The jury of the DMCCB Best Poster Presentation Award honored **Alexandre Hofer**, University of Cambridge for his excellent poster presentation on «Selective chemical functionalization of N6-methyladenine in DNA»

Source: dmccb21.scg.ch

JOURNAL NEWS

EurJIC Wöhler Young Investigator Award



The award of the Wöhler Vereinigung für Anorganische Chemie, a division of the GDCh (German Chemical Society), and the European Journal of Inorganic Chemistry (EurJIC) honors a young scientist of any nationality who has completed a Ph.D. or equivalent degree in chemistry for an excellent scientific publication in a field within inorganic

chemistry. The selected paper, in which the candidate appears as correspondence author, should have been published within two years before the nomination. The nominee will be an independent researcher, but not yet in an established academic or industrial position. The winner of the EUR 1500 award will present a lecture on her/his research at the Symposium “Highlights in Inorganic Chemistry” of the GDCh-Wissenschaftsforum Chemie 2021.

In continuation of the tradition of the past years, Chemistry Europe will be financing the fifth biennial EurJIC–Wöhler Young Investigator Prize in 2021.

Due date for nominations: March 30, 2021

Source: chemistryviews.org

Helvetica, Volume 104, Issue 2, February 2021



Reviews

Pulsed Laser Deposition as a Tool for the Development of All Solid-State Microbatteries

Luca Indrizzi, Natacha Ohannessian, Daniele Pergolesi, Thomas Lippert, Elisa Gilardi

Communications

Examining Trichloroisocyanuric Acid and Oxalyl Chloride in Complementary Approaches to Fluorination of Group 15 Heteroatoms

Dustin Bornemann, Fabian Brüning, Niccolò Bartalucci, Lionel Wettstein, Cody Ross Pitts

Tuning the Halogen Bonding Strength of Cyclic Diaryliodonium Salts

Dominik L. Reinhard, Flemming Heinen, Julian Stoesser, Elric Engelage, Stefan M. Huber

Pressure-Induced Perovskite-to-non-Perovskite Phase Transition in CsPbBr₃

Agnieszka Noculak, Simon C. Boehme, Marcel Aebli, Yevhen Shynkarenko, Kyle M. McCall, Maksym V. Kovalenko

Full Papers

Mono-Gold(I)-Catalyzed Enantioselective Intermolecular Reaction of Ynones with Styrenes: Tandem Diels–Alder and Ene Sequence

Masaki Nanko, Yuya Inaba, Keisuke Sekine, Koichi Mikami

Synthesis and Characterization of Tris(oxazolonyl)borato Copper(II) and Copper(I) Complexes

Naresh Eedugurala, Zhuoran Wang, Uddhav Kanbur, Arkady Ellern, Marek Pruski, Aaron D. Sadow

Facile C–F Bond Activation Approach to FAMT-Based Difluoromethyl-BNCT Drug Candidates

Akitaka Yokawa, Miho Hatanaka, Koichi Mikami

Synthesis and Biological Studies of O₃-Aryl Galactosides as Galactin Inhibitors

Gabriella Kervefors, Kumar Bhaskar Pal, Gergely L. Tolnai, Mukul Mahanti, Hakon Leffler, Ulf J. Nilsson, Berit Olofsson

onlinelibrary.wiley.com/journal/15222675/

INDUSTRIAL NEWS

Source: www.chemanager-online.com

Boehringer Ingelheim and Enara Bio in Cancer Pact

January 25, 2021: German drugmaker Boehringer Ingelheim and UK biotech Enara Bio have agreed to collaborate on the research and development of novel targeted cancer immunotherapies, leveraging Enara Bio's proprietary Dark Antigen Platform Technology (EDAPT). The companies aim to discover and validate novel dark antigens in up to three tumor types in lung and gastrointestinal cancers. The discovery of shared antigens could lead to the development of vaccines that can be readily used to help a broader group of cancer patients, Boehringer Ingelheim said. Dark antigens are a new class of cancer-associated antigens that derive from the portion of the human genome that is normally not expressed as protein. Dark antigen-encoding sequences are usually silenced in healthy cells but are activated and presented on tumor cells. They are also associated with specific cancer types and shared across patients. “We are advancing a unique pipeline of cancer cell-directed agents, immuno-oncology therapies and intelligent combination approaches to help combat cancer,” said Jonathon Sedgwick, senior vice president and global head, cancer immunology & immune modulation research at Boehringer Ingelheim. “Enara Bio's unique discovery platform offers a novel and highly differentiated approach that will allow us to look beyond the known proteome to identify and characterize dark antigens to support the development of T-Cell Receptor (TCR)-directed immunotherapies and therapeutic vaccines.” Sedgwick said. “We believe this is a highly innovative and promising approach to the development of the next wave of cancer immunotherapies.” Under the terms of the deal, Enara Bio is eligible to receive an undisclosed sum upfront, along with research/preclinical milestones and licensing fees for each tumor type that is explored. The biotech is also eligible to receive more than \$876 million in clinical, regulatory and commercial milestones, plus royalties on future sales. Enara Bio's president and CEO Kevin Pojasek said the partnership is its first major deal for its dark antigen capabilities. The company was founded in late 2016 as Ervaxx, initially focusing on developing therapeutic cancer vaccines using novel antigens derived from endogenous retroviral DNA sequences. It then broadened its focus to include TCR-based immunotherapies and in January 2020, in-licensed patents covering T cells and TCRs reactive to cancer-specific antigens and ligands from Cardiff University. Subsequently, in June 2020, and to reflect its expanded discovery and development strategy, Ervaxx changed its name to Enara Bio. For Boehringer Ingelheim, the collaboration marks another step toward building a cancer vaccine platform. The family-owned pharma said the past acquisitions of ViraTherapeutics and Amal Therapeutics' vaccine modalities coupled with Enara Bio's capabilities position it to develop sophisticated

ed virus and vaccine approaches for its prime/boost vaccine platform. Boehringer Ingelheim acquired Swiss biotech Amal Therapeutics in July 2019 and Austrian biopharma ViraTherapeutics in September 2018.

Novartis Offers EU Help on Vaccine Supply Front

January 29, 2021: With news of an EU Covid-19 vaccine shortage dominating international headlines, another European player is stepping up to try to bridge the gap. On the heels of French drugmaker Sanofi, Swiss pharma giant Novartis said this week it is exploring whether it can deploy its own manufacturing network to boost supply. Novartis, which said it sees controlling the pandemic as “one of the most pressing concerns for leaders, businesses and individuals all across the world,” said it is “currently in discussions with several companies with a view to supporting the manufacturing of vaccines and components for tests for Covid-19.” In the current era, the Swiss player has not been closely involved in Covid-19 vaccines, or any vaccines, having sold that business to GSK several years ago. However, its gene therapy arm AveXis is working with a US team looking to produce an early-stage Covid gene therapy as part of a project at Massachusetts General Hospital in Boston. CEO Vas Narasimhan told the Bloomberg news agency that Novartis expects to reach an agreement on a collaboration in the coming days or weeks. “We have production capacity across our network that we’re willing to make available, for everything from monoclonal antibodies to vaccine production,” he said. Bloomberg noted that Narasimhan, a physician who once led the company’s vaccines unit, has personal experience in a pandemic, having overseen the drugmaker’s response to the H1N1 swine flu pandemic in 2009. The Novartis and Sanofi pinch-hitting – which many commentators are praising as a much needed display of pharma industry solidarity in unusual times – could not only fill vaccine production gaps if successful. It could also blunt the Schadenfreude being displayed by other countries or economic blocs that see the EU strategy of trying to secure supply for 27 countries at once as having failed. In the past two weeks, Europe has been dealt double blows. First Pfizer said it would cut supply as it retools its plant at Puurs, Belgium, in preparation for a capacity boost. Then AstraZeneca – whose vaccine is poised to be approved by the European Medicines Agency (EMA) this week – informed the EU Commission it would reduce deliveries by about 60% during the first quarter, due to production problems at an CDMO partner on the continent. A day before Novartis announced its plans to enter the fray, Sanofi committed to producing more than 1.5 million doses of the Pfizer/BioNTech vaccine for the EU stockpile. The drugmaker said it had idle capacity at its Höchst chemical park site in Frankfurt, Germany, as its own plans to develop a Covid candidate in cooperation with GlaxoSmithKline faced delays. Sanofi said the Frankfurt location is ideal because of its proximity to BioNTech’s vaccine production facilities at nearby Mainz. By August, it hopes to deliver the first batches of Comirnaty from a former insulin facility, for which it already has received the go-ahead to rededicate to vaccine production. Rather than producing the active ingredient, however, it will carry out fill & finish, a role that normally would fall to a CDMO. The plant has the necessary prerequisites to produce at the minus 70°C temperature the Pfizer-BioNTech product requires, Sanofi said. BioNTech is already working together with CDMOs Rentschler Biopharm, Polymun and Dermapharm as well as Siegfried, which is also handling fill & finish. In February, BioNTech will also begin producing the mRNA-based vaccine at Marburg, Germany, in a former Behringwerke facility acquired from Novartis last year. Darmstadt, Germany-based Merck KGaA, already supplying

lipids to the Pfizer partner – which wholly owns the vaccine technology – may also provide additional support. The company said its life sciences arm is already feeding other segments of the Covid control effort.

Archroma and CleanKore Collaborate on Denim Dyeing

February 8, 2021: Swiss specialty chemicals company Archroma is partnering US firm CleanKore to advance sustainable dyeing processes for producing clothes made from denim. The companies will leverage each other’s technologies, namely Archroma’s dyes and specialty chemicals and CleanKore’s patented process for dyeing denim, which eliminates the need for using potassium permanganate (PP) spray and laser booster to achieve the bright white abrasion effect in the finishing process. CleanKore said its process also saves up to 15 liters of water per garment produced, as well as increasing yield between 10-20% because of a faster garment wash-down and elimination of the PP spray. Under European harmonized classification and labeling rules, PP is classified as very toxic to aquatic life and suspected of damaging fertility or unborn children. The Westlake, Ohio-based company added that the technology has been tested and verified at several different denim mills worldwide, for example in the US, India, Thailand, Bangladesh, China, Pakistan and Vietnam, among others. “The response from the industry has been overwhelmingly positive,” said CleanKore CEO Darryl Costin Jr. “Having a partner in Archroma, one that is highly respected for their innovation and emphasis on sustainability throughout the industry, will allow us to take CleanKore to the next level.” Archroma will support denim mills seeking to implement CleanKore’s technology by developing the right colors and chemical systems for their production set-up.

Lonza Specialty Ingredients to be sold to Bain Capital and Cinven

February 9, 2021: Lonza has signed a definitive agreement to divest its Specialty Ingredients business to Bain Capital and Cinven for an enterprise value of CHF 4.2 billion. Lonza Specialty Ingredients (LSI) operates at 17 production sites worldwide and employs approximately 2,800 people. The business is a leading supplier of microbial control solutions for professional hygiene and personal care products. It also offers custom development and manufacturing of specialty chemicals and composites to support the electronics, aerospace, food and agrochemical industries. Lonza had announced in 2019 that it was evaluating options and may divest its chemicals business to focus its strategy on the more lucrative CDMO business. As a CDMO (Contract Development & Manufacturing Organization), Lonza is a leading development and manufacturing partner for pharmaceutical and biotech companies worldwide. Both Bain Capital and Cinven have significant experience in the industrial sector and an established track record of successful investments in portfolio companies, according to Lonza. The two private equity bidders have shown strong and continued interest since the beginning of the formal sale process, confirming that they were the best home for the business and the right transaction partner for Lonza. Options initially included a spin-off, a sale or an IPO, in addition to the possibility of continuing with LSI after all. In July 2020, Lonza announced its intention to sell the division, which generates around CHF 820 million in annual sales. In October, UBS, which is handling the transaction, prepared information documents for potentially interested parties. LSI could be valued at CHF 3 billion to CHF 3.5 bil-

lion, corresponding to ten to twelve times operating earnings (EBITDA), according to the Finanz & Wirtschaft newspaper. In December, news agency Reuters reported that Lanxess was also in the running for the division, along with several financial investors. Other private equity firms interested in LSI included Advent, Carlyle and the Swiss Partners Group. Clariant was also originally mentioned as a possible interested party. Albert M. Baehny, Chairman of Lonza, explained, "The announcement is the result of a comprehensive and robust selection process. Bain Capital and Cinven have demonstrated that they understand the value of the experience and expertise of our Specialty Ingredients employees. They have presented the most compelling industrial strategy and vision for the business. They are also keen to prioritize R&D and innovation, as well as invest in existing assets to unlock the potential of the business." The transaction is expected to close in the second half of 2021, subject to customary closing conditions. The transfer of ownership is expected to proceed smoothly.

Clariant Finances Catalyst Research at ETH Zurich

February 10, 2021: Clariant has signed a cooperation agreement with the Swiss Federal Institute of Technology (ETH Zurich) to support research in catalysis and sustainable chemistry. It is providing the university with what it says is "a significant financial contribution" over an initial period of ten years. Terms were not disclosed. The Swiss specialty chemicals group said the goal of the partnership is to advance the understanding of catalyst properties from nano- to macroscale as well as their performance. Together with the ETH Foundation, it will sponsor and collaborate in fundamental chemical research projects, promoting talented scientists and students. Hans Bohnen, member of Clariant's executive committee, said the partnership with ETH, like those with other academic institutions, underscores the chemicals group's commitment to fostering innovation and R&D. Its latest cooperation expands its partnerships with prominent global academic institutions, including the Technical University of Munich, Germany, and top tier universities in China. Detlef Guenther, vice president for research at ETH Zurich, said the collaboration with Clariant opens great opportunities for the university's scientists and students to expand their knowledge in catalysis and benefit from first-hand expertise in the industrial application of novel technologies. One of the world's leading universities, the Zurich prestige school is currently recognized as the sixth best by QS World University Rankings. Since its founding in 1855, it has had a strong tradition in science and technology and has produced 21 Nobel Prize winners, including Albert Einstein.

China's WuXi Buys Bristol Myers Squibb's Swiss Plant

February 11, 2021: China contract development and manufacturing organization (CDMO) WuXi STA has agreed to buy Bristol Myers Squibb's manufacturing facility in Couvet, Switzerland, for an undisclosed sum. The site will be WuXi STA's first facility in Europe. The transaction is expected to complete during the second quarter, subject to the usual conditions and regulatory approvals. "The acquisition will allow WuXi STA to better serve European markets and support our global customers to deliver innovative medicines and treatments to patients around the world," said WuXi STA's CEO Minzhang Chen. Lou Schmukler, president of global product development and supply at Bristol Myers Squibb, added: "This is an important step in the ongoing evolution of our manufacturing network to support

our product portfolio. Switzerland remains an important strategic location for Bristol Myers Squibb, and we look forward to maintaining a strong presence in the Neuchâtel area." The facility located in the Swiss canton of Neuchâtel has commercial-scale production capacity for capsule and tablet dosage forms and was designed to accommodate future growth. WuXi STA is a subsidiary of WuXi AppTec and operates four plants in China at Wuxi City, Jiangsu; Jinshan, Shanghai; Changzhou, Jiangsu; and Shanghai Waigaoqiao Free Trade Zone, plus another in San Diego, California, USA.

BioNTech Starts mRNA Production in Marburg

February 12, 2021: BioNTech this week kicked off production at the Marburg, Germany, plant it acquired last year from Novartis. The plant will focus on making mRNA batches, the beginning of the manufacturing chain for the Covid-19 vaccine Comirnaty that BioNTech is producing and marketing together with US drugmaker Pfizer. The Mainz, Germany-based biotech said it expects to produce up to 250 million doses of its proprietary vaccine at the site in the first half of this year and up to 750 million doses annually when production is fully ramped up. The partners' goal is to produce 1 billion doses during 2021. A single mRNA batch of the current scale is sufficient to produce around eight million vaccine dose, according to the company. The first vaccines are expected to roll off the line at Marburg in early April. Explaining the process, BioNTech said that following mRNA production and purification, Lipid Nanoparticles (LNP) are formed by combining the genetic base product with a mixture of lipids. This is then sent to a CDMO partner for fill & finish. When the current vaccine-focused process is complete, an analysis to confirm quality of the final product is to be conducted by two independent laboratories, BioNTech's quality control lab in Idar-Oberstein, Germany, and the official medicinal batch lab at Germany's Paul-Ehrlich-Institute in Langen, Germany. Under Novartis, the Marburg plant had initially manufactured vaccines for rabies, swine flu, and tetanus – a line the Swiss group gave up in a portfolio swap with GlaxoSmithKline. However, it retained the premises, which at the time of sale to BioNTech employed 300 skilled workers making complex biological medicines. The site also had two bioreactors that could be retrofitted to produce the Covid vaccine. After a review of quality and validation data, the next step in the BioNTech effort calls for the production process to be approved by the European Medicines Agency (EMA). Data from the first batches as well as from process validation will be assessed via the centralized variation procedure coordinated by the EMA. This is due to take place during February and March.

Evonik steps in with lipid production

Following Merck, KGaA, which last week said it would "significantly accelerate" the supply of urgently needed lipids to BioNTech at Mainz and increase the volume of deliveries up to the end of 2021, another German chemical producer – this time, Evonik – announced plans to ramp up its lipids production to help produce mRNA vaccines. In what it called a "long-term investment," the Essen-based group said it will begin making commercial volumes of lipids at its Hanau and Dossenheim, Germany, sites from the second half of 2021 as part of a strategic partnership with BioNTech. As a leader for advanced drug delivery, Evonik said it supports drugmakers worldwide in development and production of complex parenteral drug products that require formulation technologies, including lipid nanoparticles. During the pandemic, the chemical group has been actively involved in various mRNA-based vaccines projects for Covid-19, supplying excipients such as lipids, as well as CDMO

services. The specialty chemical producer, which has steadily expanded its market presence through acquisition, already develops and formulates lipid nanoparticles in Burnaby, Canada, and additionally operates a facility for the production and fill & finish of commercial volumes at Birmingham, Alabama, in the US.

German pressure group calls for BioNTech knowhow leak

A German pressure group calling itself Peng (bang as in gunshot) has started a campaign called Biontech-Links, calling on company employees to steal the formula for making the Covid vaccine and leak it publicly. In this way, the campaign says, other firms can make it and thus increase supply to the 60 or so countries that have not yet begun vaccinating their population. A spokesperson for Peng said BioNTech's vaccine was developed with "generous public funding," but as a privately owned company it is now holding it under wraps, thus enabling an unjust distribution and contributing to supply bottlenecks. Peng, which has bought large-scale advertising displays in public places and made a film urging the leak, called on the political sector to remove the Mainz-based biotech's patent production.

Sandoz to Acquire GSK's Cephalosporin Antibiotics

February 19, 2021: Sandoz, the generics division of Swiss drugmaker Novartis, is picking up GlaxoSmithKline's cephalosporin antibiotics business, including the brands Zinnat, Zinacef and Fortum, for up to \$500 million. The generics maker will pay \$350 million for the business on closing, expected in the second half of 2021, plus a further \$150 million for agreed milestones. It will own rights to all three brands in all markets except Australia, China, Egypt, Germany, India, Japan, Pakistan and the US. According to GSK, all of the affected products with combined sales of around \$140 million in "relevant" markets last year are now off patent. After transferring production to Sandoz, planned for 2025, the UK pharma will shut down its cephalosporin manufacturing activity. While no job cuts related to the transaction have been announced, the British pharma said all 170 roles in the Zinnat supply chain would be affected. In pursuit of a leaner structure, GSK is in the process of splitting into two separate units, with one focusing on over-the-counter products and the other on prescription drugs and vaccines. The company is currently partnered with France's Sanofi on a delayed Covid-19 vaccine currently in Phase 2 clinical trials.

Steady in the Long Term Despite the Crisis The Chemical Industry Must up its Resilience now – also to Weather Future Crises

February 22, 2021: For the report "Value Creation in Chemicals 2020: Bouncing Back from a Year of Adversity", Boston Consulting Group (BCG) analyzed the development of the global chemicals market in the Covid-19 crisis in 2020 and in the years 2015 to 2019 using key figures. The result shows: The current crisis is forcing companies to increase their resilience. The entire value chain, exposure to the end industry, and technical, commercial and digital capabilities must be put to the test in order to respond more effectively to changes in the markets in the future. The result shows: The current crisis is forcing companies to increase their resilience. The entire value chain, exposure to the end industry, and technical, commercial and digital capabilities must be put to the test in order to respond more effectively to changes in the markets in the future.

Impact of the Pandemic on Sales, Profitability and Production

The chemical industry's key end markets were affected differently by the pandemic. Pharmaceutical manufacturers and suppliers to the food industry were among the winners, with average sales increases of 4% in the first half of 2020. By contrast, companies serving the automotive and aerospace industries saw sales plummet by an average of between 15 and 20% in that period. Looking at the profitability of the segments, a similar picture emerges: of 20 chemical product segments studied by BCG, only agrochemicals and food ingredients posted an increase of their EBITDA. The markets also developed differently from region to region. The Global Chemical Production Index (GCPI) by the American Chemistry Council (ACC) shows that although production in Europe declined in the summer, it was up 10% year-on-year again in December. China and India also recovered from production declines in the first half of the year, ending the year up 13% (China) and 5% (India). North America, on the other hand, is recovering much more slowly and had not yet reached pre-Covid levels by the end of 2020. The long-term impact of the Covid shock depends on whether demand in the segment in question has fallen or risen because there are structural reasons for it, or whether it is a temporary phenomenon. For example, companies in the composites or engineering plastics sectors were already challenged by declines in demand before the pandemic. The Covid-19 crisis has exacerbated this, while the construction chemicals or personal care sectors have not been hit at all. "By and large, the Covid-19 crises did not cause the existing strengths and weaknesses of chemical companies but brought them more clearly to light."

Long-term Development of the Industry Continues

The Covid moment followed a stable, but by no means outstanding, growth period: between 2015 and 2019, the chemical industry's total shareholder return (TSR; takes into account the change in share price as well as its underlying drivers such as change in sales, margin, trading multiples, and cash-flow effects over a given period) developed below all industries' average, with an annual increase of 8%. By comparison, financial institutions achieved a TSR of 20% over the same period, and technology companies 18%. The automotive industry brought up the rear in BCG's TSR ranking, with a five-year TSR of zero. This metric also shows significant differences between individual regions and sub-segments. European chemical companies had the best TSR between 2015 and 2019 at 11%. The focused specialties segments performed best in this region with a 14% TSR – as in previous five-year periods, in which these segments outperformed the base chemicals and multi specialties segments. Sales also had a positive impact on TSR: In Europe, the chemical industry's sales grew by 4% during the period under review. The development in North America was quite different: the weakness of the chemical industry there is also reflected in the comparatively low TSR of 5%. The low oil price has almost leveled out the cost advantages offered by shale gas, and as a result, investments have been cut back. In addition, the trade conflict with China has weighed heavily on US base chemicals companies. Sales stagnated accordingly. International Flavor & Fragrances and Sherwin Williams bucked the trend, with annual sales growth of 10%.

Company Size also Influences TSR

Strikingly, large chemical companies with a market capitalization of over \$7 billion performed significantly better in terms of TSR than medium-sized chemical companies with a market capitalization of between \$1 billion and \$7 billion. The industry's large players consistently occupy the midfield, while mid-sized companies are in the bottom fifth. Among the top performers, with a five-year TSR of 32% and a ten-year TSR of

23% is Sika, a Swiss company that has become a global leader in construction chemicals through an effective M&A strategy. Lonza has also positioned itself well in the fast-growing pharmaceutical ingredients market. In addition, three Indian companies outperformed: Berger Paints (five-year TSR 30%), Pidilite (30%) and Asian Paints (21%). This was certainly due to India's remarkable economic rise, but all three were hit particularly hard by the Covid-19 crisis: In the second quarter of this year, they suffered a drop in sales of more than 40%.

The pandemic appears to be accelerating these long-term trends. Chemical companies contributing to the pharmaceutical and healthcare value chain had the highest TSRs in the first half of this year. The food ingredients and electronic chemicals segments also recovered quickly after the slump in the first months of 2020 and showed positive TSRs again from mid-2020. These segments are particularly resilient because they are less asset-intensive, their dependence on commodity cycles is lower, and they are less sensitive to macroeconomic fluctuations – as they capitalize on long-term consumer trends. This makes them particularly attractive for investors. The commodities products segments, here for example vinyl chloride, synthetic rubber or fertilizers, are quite different. Companies in these segments already had low TSRs before the Covid-19 crisis. With the pandemic, these then fell again, in some cases by double digits. “To be successful, the chemical industry must increasingly use digital technologies and innovate its business models.”

Falling Yields Weigh on the Sector

Another metric that points to a fundamental challenge is return on capital employed (ROCE). The decline in ROCE had been accelerating even before the pandemic. Combined with lower cash flows, this can have a negative impact on the valuation of existing investments and the consideration of future investments. One way to stop this trend is to improve margins through higher plant utilization, a better product mix or a reduction in transaction costs. Many chemical companies are already doing this. Less common, but quite effective, is increasing asset productivity, e.g. by managing capital allocation so that preferably those businesses, products and regions with the highest returns receive capital. Changing the allocation model would also mean rigorously reviewing new capital projects, introducing asset-friendly business models – including make-or-buy – and divesting poorly performing assets. A combination of these measures will put chemical companies on a path to better ROCE and can provide a TSR boost to the industry.

Learning from the Crisis for the Future

By and large, the Covid-19 crises did not cause the existing strengths and weaknesses of chemical companies but brought them more clearly to light. The enormous speed of the demand and supply disruptions of the first 6 months of 2020 does show how important it is to be able to reduce costs quickly, e.g. through a high proportion of variable costs or by pursuing a leaner CAPEX strategy (e.g. fewer integrated value chains, more asset sharing/leasing). Regionalizing supply chains reduces the risk of failure. To be successful, the chemical industry must increasingly use digital technologies and innovate its business models. Most chemical companies use digital technologies only as a means to reduce costs. Neither in the important go-to-market area nor in product and application development has digitalization played a significant role so far. Agile R&D functions are also crucial to success. The pandemic has once again clearly shown that needs are not static. Therefore, chemical companies need to align their development efforts with ever-changing needs. Those who are most adept at dealing with an uncertain present will have the greatest chance of generating value in the future.

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