Welcoming Remarks for the 50th Anniversary of DGKK

Fifty Years of German Association for Crystal Growth (1970 – 2020)

The German Association for Crystal Growth (DGKK – Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung) will celebrate a specific jubilee this year, its 50th anniversary of foundation. Nowadays the DGKK is an active member of the International Organization of Crystal Growth (IOCG) and plays a major role in the European Network on Crystal Growth (ENCG). Furthermore, close collaborations and long-standing common activities are existing between the DGKK, the Polish Society for Crystal Growth (PSCG), the French Committee for Crystal Growth (CFCC) and the Section of Crystal Growth of Swiss Society for Crystallography (SSCR).

The special issue “Fifty years of DGKK” contains a colorful collection of scientific results in the various fields of crystal growth and characterization, which are promoted by DGKK. Furthermore, the historical development in the field of crystal growth in Germany before and after the foundation of DGKK is treated in detail.

We are very thankful to all authors who contributed their articles to this special issue. Our Editorial team gratefully acknowledges very much the permanent support of the DGKK members who are supporting our journal as referees, members of the Advisory Board or Steering Committee.

All the best for the next 50 years of DGKK.

Wolfgang Neumann
Editor-in-Chief

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Consulting Editor

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Managing Editor

Welcome Address of the President of DGKK

Wolfram Miller

In the evening of July 9, 1970, in total 13 crystal growers came together in Bensbach-Auersheim after a meeting of the group “Kristallisation” of the “Verfahrens Technische Gesellschaft (VTG)” and founded the “Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung (DGKK).”

This happened after about 2 years of several discussions about the best way to promote the field of crystal growth in the scientific community. Crystal growth is per se an interdisciplinary topic, including physics, chemistry, crystallography, engineering to name the most important ones. On the other hand crystal growth is the required basis for our world today with all its electronic, optical, and opto-electronic systems. Looking back it was a very good decision and we can be proud of the people establishing DGKK and organizing all its activities. From the beginning DGKK took care of organizing an annual conference, often together with partner organizations of the neighboring countries. These conferences have been used to present and discuss the development in all branches of bulk crystal growth and epitaxy. A key point has been the participation of both industry and academia.

Another place for scientific exchange has been the workshops of the “Arbeitskreise” (working groups). Latest results were presented and discussed in these events which often extended into the evening with a glass of beer or wine.

This special edition will present an overview of the current activities in all areas covered by DGKK.

We are still facing great challenges in the field of crystal growth and epitaxy and even a material like silicon requires new investigations in production and deeper understanding.

Though it is often hardly seen, single crystals and epitaxial layers are fundamental for today’s life.

The DGKK has been always active in promoting this field by various measures. For this reason DGKK is also active in the International Organization for Crystal Growth (IOCG) and the European Network of Crystal Growth (ENCG).

I am pretty sure that in future also DGKK will strengthen the field of crystal growth and epitaxy together with the partner associations in other countries and the international organizations.

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Welcome Address of the International Organization for Crystal Growth (IOCG)

Koichi Kakimoto

On behalf of the International Organization for Crystal Growth (IOCG), it is my great honor and pleasure to celebrate 50th anniversary of the German Association for Crystal Growth (Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung) in 2020. Germany is one of the most active leading countries in crystal growth from fundamental to application and has contributed to our crystal growth community in the world. The DGKK was established in 1970 at Munich, since then the DGKK have had great achievements in the last 50 years, for example, development of a series of outstanding crystal growth science and technologies, growth of high-quality crystals being widely used in industry and other fields closely related to daily life of ordinary peoples. Such science and technologies and products not only make remarkable contribution to the development of German society, but also are attractive to the people all over the world.

The DGKK has many distinguished scientists with great reputation worldwide. We would like to express our sincere congratulations. The DGKK had put great efforts in developing friendships among the crystal growth communities, such as taking the initiative to form collaborations and build friendship among crystal growth colleagues in the world. The DGKK has actively involved in professional events through the International Organization of Crystal Growth, and made great contribution to ICCGE.

I wish the DGKK even more progress, great achievements, and wish every member of the DGKK and all friends here great success.

Koichi Kakimoto, Fukuoka
President of International Organization for Crystal Growth

Welcome Address of the European Network of Crystal Growth (ENCG)

Andrea Zappettini

It is my honor and privilege to write this welcome address for the 50th anniversary of the foundation of the German Association for Crystal Growth (DGKK). The large number of members and the vastity of the crystal growth activities make DGKK one of the largest national crystal growth associations not only in Europe, but in the whole world. When attending any international crystal growth conference, everyone can realize that at least one member from DGKK gives an important talk at each session. Moreover, the strong relationship of the German Association with crystal growth industries is really amazing. The tradition of DGKK and the list of the achievements of its members are impressive; however, what I want to underline here is mainly its capability to look forward, supporting the initiative of young crystal growers. Both from the association website and from the prizes always tributed to young scientists during national/international conferences, the great attention paid by DGKK to the next generation of crystal growers is really evident.

Finally, as coordinator of the European Network on Crystal Growth (ENCG), I cannot forget the fundamental contribution given by DGKK to the birth of ENCG. In fact, the birth of ENCG took place during a meeting held on October 21, 2010 at the Leibniz Institute for Crystal Growth (IKZ) in Berlin. This meeting was attended by 31 participants from 22 European countries and chaired by the President of the International Organization for Crystal Growth (IOCG), Prof. Roberto Fornari, and the President of the German Association of Crystal Growth (DGKK), Prof. Peter Rudolph.

To conclude, I would really like to express my best wishes to DGKK to continue for the next years with great successes in crystal growth activities concerning science, industrial innovation, and international cooperation.

Andrea Zappettini, Parma
Coordinator of European Network on Crystal Growth
Director of IMEM-CNR, Parma, Italy
Welcome Address of the Polish Society for Crystal Growth (PSCG)

Dobrosława Kasprówicz and Tomasz Klimczuk

The German Association for Crystal Growth (DGKK) will soon celebrate its 50th anniversary. Collaboration between DGKK and Polish Society for Crystal Growth (PSCG) started almost 30 years ago, thanks to Prof. Anna Pajączkowska, who was the first President of the PSCG (1991–1993) and have been a member of DGKK since 1992. Since the same year several joint meetings organized in Germany and Poland have taken place, that is, Berlin (1999), Berlin-Adlershof (2006), Zakopane-Łościenisko (2007), Kcyńia (2010), Frankfurt (Oder) and Słubice (2011), Gdańsk and Warszawa (2013), Poznań (2019). Some of the meetings (1999, 2007) were organized together with friends from Japan.

The most successful meetings were the 17th International Conference on Crystal Growth and Epitaxy (ICCG-17 Warszawa) and the 15th International Summer School on Crystal Growth (ISSCG-15 Gdańsk). There were almost 700 participants at the conference and more than 100 students at the school. Both events were possible thanks to efforts of PSCG and DGKK.

Both societies share high appreciation for Prof. Jan Czochralski, who discovered the method of single crystal growth, named after him as the “Czochralski Growth Method.” Prof. Jan Czochralski—the Patron of PTWK—was born in 1883 in Kcyńia. He spent several years in Berlin where he worked in a drugstore, then in research laboratories, and also attended lectures on chemistry at the Technical University in Charlottenburg (at that time independent town near Berlin). His first published paper appeared in Zeitschrift des Vereines Deutscher Ingenieure in 1913. From 1928 to the end of 1945 he was employed at the Warsaw University of Technology and then he returned to his hometown Kcyńia. Prof. Czochralski died in 1953 in Poznań. To honor the 60th anniversary of his death the Sejm of the Republic of Poland passed a resolution about making the year 2013 as the Year of Jan Czochralski. Nowadays, Prof. Czochralski is the most recognized Polish scientist in the world and his contribution to the crystal growth technology, materials science, technology transfer to industry, and international collaboration is still expanding.

Dear friends—we wish you many spectacular achievements, discoveries in your scientific activity. We do hope to meet you at the joint conferences, meetings, events.

Dobrosława Kasprówicz, Poznań
President of PSCG
Tomasz Klimczuk, Gdańsk
Designated President of PSCG

Welcome Address of the French Committee for Crystal Growth (CFCC)

Matias Velázquez

Congratulations on completing 50 years of your association! Fifty years is an age of maturity and of incipient wisdom, probably the best age to perform the kind of creative research that leaves lasting marks in science.

The DGKK and its members have always been a leading example for the whole crystal growth community worldwide, more particularly in Europe. Worthy of note here is the will to promote crystal growth research and development in Germany first, with dedicated journals and meetings, and then at the European and international levels. DGKK is a founding member of the International Organization of Crystal Growth and undoubtedly one of its strongest pillars. The German participation and submission success to the European and the International Conferences in Crystal Growth is always the strongest among European countries. We also remember the outstanding organization of the 12th International Summer School on Crystal Growth in Berlin, 2004, with very high level of scientific excellence and sense of hospitality typical of our German colleagues. In 2004, the ISSCG-ICCG events organization was shared between the German and the French crystal growers, with ICCG-14 held in Grenoble, where a brilliant mind from the University of Bonn, George Comsa, was awarded the IOCG Frank Prize.

German research activity in crystal growth is definitely Promethean. It covers all aspects, from bulk crystals and epitaxial growth, including laser and nonlinear optical crystals, to kinetics and industrial crystallization and process developments, with an everlasting sense of technological progress. German crystal growth is good for science and good for society.

The French–German close relationship in crystal growth research and technology was decisive in the foundation of the European Network of Crystal Growth in Berlin, 2010, which endorses the triennial ESCG-ECCG events. It is also exemplified by the, now alternated in both countries, annual bilateral Workshop on Oxide, Dielectric and Laser single crystals (Bordeaux 2017, Idar-Oberstein 2018, Lyon 2019, Berlin 2020). The friendliness shared during this workshop, around some delicious Spießbraten, made an as long impression on many of us as the perfection and size of German crystals.

The French crystal growers organized in the CFCC-AFC (Association Française de Cristallographie) wish the DGKK a long life, full of astounding achievements, pleasure in scientific research to its members, and hearty collaborations all around the world, and more particularly with the French scientists. We look forward to welcoming you at the 3rd European School and 7th European Conference on Crystal Growth which will be organized in Paris in July 2021.

Matias Velázquez, Grenoble
Chairman of Comité Français de Croissance Cristalline
Welcome Address of the Swiss Society for Crystallography (SSCR)

Enrico Giannini

On behalf of the Swiss Society for Crystallography, I have the pleasure to pay tribute to the golden jubilee of the Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung (DGKK).

The DGKK has long been one of the most active national societies in crystal growth worldwide and its contribution to the field of crystal growth science and technology has been constantly remarkable over the last five decades, in terms of support to research, education, and technological developments. The whole European community of scientists and institutions active in the field of crystal growth has been revitalized in 2010 by the joint initiative of the DGKK and the International Organization for Crystal Growth to found the European Network of Crystal Growth. Thanks to that initiative, a regular European conference on crystal growth is now re-established and the international networking has been strengthened.

As a national society of a neighboring country, the Section of Crystal Growth of the Swiss Society for Crystallography (SGK) has had the privilege to cooperate with the DGKK on several occasions. The DGKK and the SGK have co-organized joint conferences and workshops over the years, from the first in Freiburg i. B. in the early time of the societies (1972) until the last, again in Freiburg, in 2017. These successful conferences helped to keep alive and reinforce the contacts and collaborations between the two national communities. Dedicated workshops on crystal growth technology, organized over the years either in Switzerland (Beatenberg) or Germany (Berlin), have shown the common intent of both societies to create a bridge between science and industrial technology in crystal growth and favor education in this field.

Materials science is continuously evolving, driven by the changing needs of the society and, particularly today, the urgent necessity to tackle the energy challenge. Crystal growth is called to play a major role in this time, as it was for the development of semiconductor electronics, optical devices, light-emitting diodes, and many other technological achievements. National societies must keep on supporting synergies and networking, educating young scientists, and promoting cultural and human exchanges. The SGK will be delighted to maintain a long-term friendship and partnership with the DGKK.

I am sure that the achievements of the first 50 years of life of the DGKK will go on inspiring ideas and discussions around the ways that we can improve materials, technology, and daily life.

Best wishes to the DGKK for its remarkable golden jubilee.

Enrico Giannini, Genève
Co-ordinator of the Swiss Section of Crystal Growth
Councillor of the Swiss Society for Crystallography