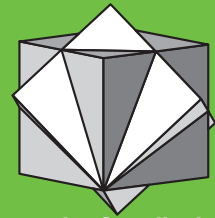


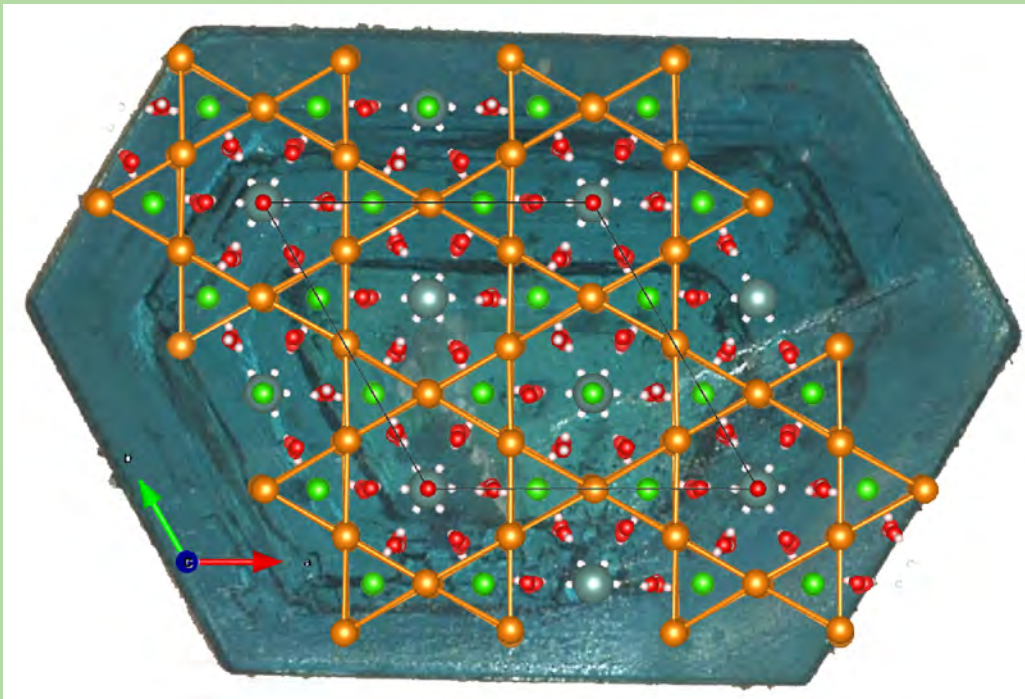


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DGKK-intern

1st German-Austrian Conference on Crystal Growth (GACCG/DKT2018)

14-16th of February 2018 in Vienna, Austria

Sepideh Faraji, Fraunhofer Institute for Integrated Systems and Device Technology (IISB), Erlangen

The 1st German-Austrian Conference on Crystal Growth took place at the faculty of physics in Vienna University of Technology (Technische Universität Wien). Under the chairship of Dr. Wolfram Miller from Leibniz Institute of Crystal Growth (IKZ), Berlin, and Prof. Andrey Prokofiev from Technical University (TU) Vienna, researchers, developers and experts from different research institutes, universities and companies met there in order to exchange the latest research and development results in the field of crystal growth.



Abb. 1: Prof. Andrey Prokofiev from TU Vienna welcomes the participants.
Photo: T. Jauß

From about 75 participants there were 11 participants from Austria, one from US, one from Russia and the rest of the participants were from Germany. The three days of the scientific program consisted of 7 sessions, including 6 invited lectures and 20 oral contributions following by poster sessions and company exhibitions. The conference began with opening remarks by W. Miller from IKZ and continued by presentations and interactive discussions. The first session of the conference was chaired by L. Kadinsky from Siltronic AG München,



Abb. 2: Discussion during break.

Photo: T. Jauß

Germany and started by an invited talk presented by the featured speaker J. Derby from University of Minnesota, USA. He presented how modelling and experiments together have enabled the identification of fundamental mechanisms, important during the growth of bulk crystals from melt. The first session of the conference was mostly about the characterisation, modelling and simulation of the grown crystals.

The second session of the day was mainly focused on the epitaxial and bulk crystal growth by different methods of MOVPE, HTVPE and PVT techniques. The session started by an invited talk from A. Bonanni from Johannes Kepler University (TU) Linz, Austria, about the III-nitride modulated epitaxial structures particularly attractive for spin electronics. One of the most interesting talks of that session was presented by M. Heuken from Aixtron SE Herzogenrath, Germany, and it was about epitaxial technologies for micro-LED application. He noted the importance of wavelength uniformity, wafer to wafer and run to run in the production of micro-LEDs which are used in LCD and OLED displays. Thereby, investigations were done by his group in order to improve the emission wavelength uniformity of MQWs (hetero-epitaxial layers of InGaP/AlGaInP and InGaN/GaN for red, blue and green LED).

Afterward, following the decision of the award committee, the DGKK prize for the best young researcher was awarded to M. Marx from Aixtron SE Herzogenrath, Germany, who studied at the University of Aachen. Subsequently, he presented the results of his latest investigations on the development and characterisation of the MOVPE process for deposition of 2D transition metal Dichalcogenides. He highlighted the challenges for the reproducible and scalable deposition of MoS₂ epitaxial layer in MOVPE. Investigations that are required to achieve an optimum deposition of nucleation layer and lateral growth by adjusting the growth parameters in MOVPE were



Abb. 3: Area for poster session and breaks.

Photo: T. Jauß

discussed. As a researcher in the field of crystal growth the most interesting topics of the second day for me were "Implications in alloy ordering and strong compositional limitations in epitaxial InGaN films" presented by L. Lymperakis from Max-Planck Institute Düsseldorf, Germany, and "PVT growth of AlN bulk crystals by studying the morphological stability of growth facets in different crucible materials" presented by B. Epelbaum from Fraunhofer Institute (IISB) Erlangen, Germany.

Later, in the evening during dinner there was an opportunity to have interactive discussions with others in a very nice atmosphere. The prize of the poster session of jDGKK was given to K. Bader from Ludwig-Maximilian University (LMU) München, Germany. His presented topic was "Single crystal growth by the Czochralski method and characterisation of $\text{FeGa}_{3-x}\text{Ge}_x$ ".

At the closing of the conference W. Miller conveyed his gratitude to all participants, particularly Prof. Prokofiev, session moderators and presenters in his capacity as conference



Abb. 4: Matthias Marx (middle) from RWTH Aachen received the DGKK-prize for junior researcher. Left: M. Heuken (member of the jury), right: W. Miller (president of DGKK). Photo: T. Jauß

president and chairperson. He extended his thanks to the local organizing committee, TU Vienna for their efforts. The conference was very well organised and participants benefited from intensive exchange opportunities.

Personally, I would like to thank DGKK for financial support that gave me an opportunity to participate in this conference and to be informed about the latest investigations and developments in my field of work. Moreover, by presenting the latest results of our experiments and discussions with other researchers I could get some further great ideas for further improvement of my experiments.



Abb. 5: Kristian Bader from LMU Munich got the poster prize. This includes one volume of the handbook of Crystal Growth sponsored by Elsevier. Photo: T. Jauß

Highlights of the 7th jDGKK Seminar in Vienna

Mohammad Tollabi Mazraehno, Institut für Festkörperphysik, Technische Universität Berlin

In February 13, 2018 I had the opportunity to attend the 7th jDGKK Seminar, held jointly by German Society of Crystal Growth (Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung) and the Technical University of Vienna. To be more precise, the seminar was hosted at the Physics Faculty in the heart of the beautiful Vienna.

The seminar brought together more than 30 students, researchers and corporate executives from Germany and Austria, who are working in the field of crystal growth, crystalline materials, and epitaxy. It consisted of a one-day program, including presentations by renowned scientists and luminaries, poster session, lab tours, social event, and plenty of time for discussion, which, I believe, was a very rich experience from

both technical as well as social aspect. The invited speakers included Prof. Dr. Andrey Prokofiev from Technical University of Vienna, Austria (who gave an indepth talk on synthesis and characterization of heavy fermion compounds and thermoelectric materials), Prof. Dr. Friedrich Schäffler from Technical University of Linz, Austria (who presented the recent advances in growth and applications of immiscible semiconductors), and Prof. Dr. Alberta Bonanni from Technical University of Linz, Austria (who gave an amazing talk on her research on magnetic semiconductors), just to name a few.

From my point of view, the seminar was beneficial in a multitude of ways. The talks were highly interactive and stimulating, generating plenty of interesting questions and instructive dia-

logue between the lecturers and students. The talks covered a quite broad spectrum of topics ranging from magnetic and thermoelectric materials to III-V semiconductors and heavy fermions. The variety of talks, informal atmosphere to interact with the presenters, and sufficient time for discussion were highlights of the 7th jDGKK Seminar.

In addition, we had also the opportunity to present our work during the poster session, discuss with each other, and provide feedback to one another. The poster session was a highlight for me as I found the quality of the posters exceptionally high. A few notable posters from my perspective highlighted work on the GaN self-separation from sapphire in HVPE, growth of ZnO nanorods on graphene, and high temperature VPE of GaN on sapphire. There were also two lab tours at the X-ray center of Vienna and Physics department of the Technical University of Vienna. It should be noted that the X-ray center of Vienna is a research center devoted to the science and technology of characterization of crystalline and non-crystalline materials with highly equipped labs. I was very impressed by their cutting edge research.

Furthermore, the seminar provided a unique opportunity for both strengthening existing, and fostering new, scientific collaborations among the participants. It was a great opportunity for networking and connecting with peers and luminaries, in order to share ideas and exchange first-hand experience, which, I think, is helpful to initiate scientific collaborations.

Apart from the scientific aspects, the program ended with a

nice dinner at a local restaurant, which was very joyful and impressively well organized.

Overall, the 7th jDGKK Seminar was an inspiring and motivating experience for me. I am so grateful that I could interact with these wonderful students and professors. To say that the seminar was fantastic would be an understatement. It all sounded wonderful and I am very glad for the participation. To all of you reading this and deal with crystal growth, this is definitely one of the seminars that you should attend.

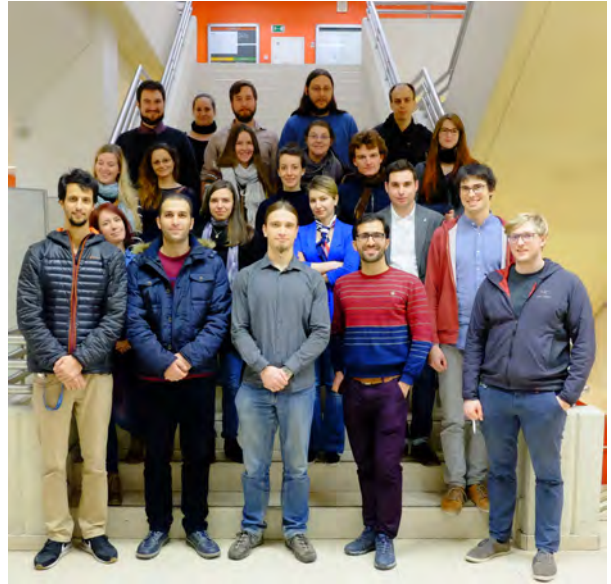


Abb. 1: The young crystal growth community.

Photo: T. Jauß

Mitglieder 2018, erste Jahreshälfte

Wir begrüßen seit dem 14.12.2017 als neue Mitglieder (Stand 27.06.2018):

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Herr M.Sc. Patrick Eschenbacher	Siltronic AG, Burghausen
Frau Melissa Roder	Albert-Ludwigs-Universität, Freiburg
Herr Dr. Tim Wernicke	Technische Universität, Berlin
Herr Dr. Christian Kränkel	Leibniz-Institut für Kristallzüchtung (IKZ), Berlin
Herr M.Sc. Matthias Arzig	Friedrich-Alexander-Universität, Erlangen-Nürnberg

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