Agenda of Sessions

14th German-French Workshop on Oxide, Dielectric, and Laser Crystals 2025

September 24th-25th, 2025 - Ettlingen (Germany)

Organized by

Fraunhofer IOSB · IRS · KIT Karlsruhe Institute of Technology · KFG

Under the aegis of

dgkk · cnrs · AFC · Cmdo+ · Comité Français de Croissance Cristalline · RESEAU CRISTECH Croissance cristalline - Cristallisation

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Published by

Fraunhofer IOSB

Gutleuthausstr. 1

76275 Ettlingen

Germany

Web: www.iosb.fraunhofer.de

Editors

M. Eichhorn, C. Kieleck

As of

September 2025

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Chairs Welcome Letter

Dear colleagues,

it is our pleasure to welcome you to the 14th German-French Workshop on Oxide, Dielectric and Laser Single Crystals (WODIL 2025). With honor we organize WODIL 2025 on September 24th and 25th at the premises of Fraunhofer IOSB in Ettlingen, Germany, and we are excited to provide this venue allowing our community to share and discuss latest results.

WODIL is an international event, open to researchers from all over the world, and free of charge.

The workshop is devoted to any research involving oxide, chalcogenide, pnictide or halide single crystals that are used as optical, piezoelectric, laser or non-linear materials, and as substrates for piezoelectric and oxide electronic applications.

We bring together scientists and scholars from industry, research labs, government and universities to present and discuss the recent advances in the field of oxide crystals, dielectric materials, laser and non-linear optical crystals, solid-state lasers, and related topics.

WODIL is a joint collaboration of the German Society of Crystal Growth (DGKK), the CNRS networks CRISTECH and CMDO+, and the French Committee for Crystal Growth (CFCC) under the aegis of the French Association of Crystallography (AFC).

WODIL 2025 is jointly organized by the Institute of Control Systems (IRS) of the Karlsruhe Institute of Technology (KIT), the KIT Freundeskreis und Fördergesellschaft e.V. (KFG) and the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB).

We are looking forward to welcoming you in Ettlingen and hope you enjoy the workshop sessions, networking opportunities and side events!

Fraunhofer IOSB, September 2025

Dr. Christelle Kieleck and Prof. Dr. Marc Eichhorn

Chairs of WODIL 2025

Organization and Program Committee

Chairs

- Marc Eichhorn, Fraunhofer IOSB and KIT
- Christelle Kieleck, Fraunhofer IOSB

WODIL Steering Committee

- Matthias Bickermann, IKZ Berlin
- Christian Kränkel, IKZ Berlin
- Sebastian Schwung, EOT GmbH – Coherent
- Daniel Rytz, Brevalor Sàrl
- Philippe Veber, Crystal Growth Laboratory, Faculty of Physics, West University of Timisoara
- Matias Velazquez, SIMaP/EPM Grenoble INP-UGA-CNRS

Local Scientific Program Committee

- Stefan Püschel, Fraunhofer IOSB
- Marius Rupp, Fraunhofer IOSB
- Benjamin Luwe, Fraunhofer IOSB
- Sarah Wittmann, Fraunhofer IOSB
- Katharina Goth, Fraunhofer IOSB

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- Janina Otto, Fraunhofer IOSB
- Xenia Piontek, Fraunhofer IOSB
- Ulrich Pontes, Fraunhofer IOSB
- Birgit Euscher, Fraunhofer IOSB

General Information

Venue

Fraunhofer IOSB, Gutleuthausstr. 1, 76275 Ettlingen, Room 002

Registration

The registration will be at the registration desk in the foyer.

Poster session

Posters will be presented during the whole conference.

Lunch

There will be a small lunch/snacks for everyone at the conference.

Conference dinner

The conference dinner will be at the restaurant "Veritas" next to our premises and is included for all registered participants (except drinks).

Lab Tours

We offer a lab tour to the oxide crystal growth and analytical labs on Thursday afternoon. Please register for that on Wednesday.

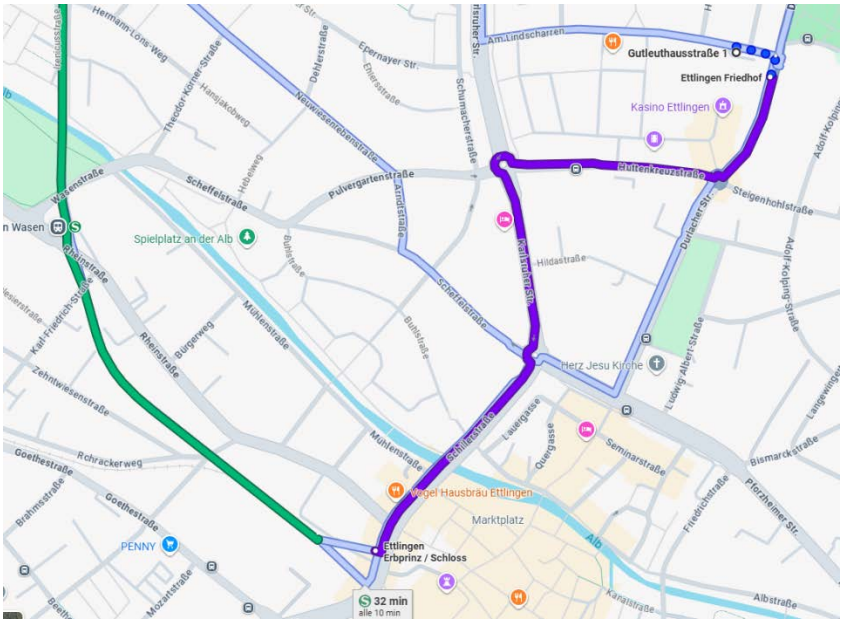
Website

https://www.iosb.fraunhofer.de/en/events/2025/wodil-2025.html

How to get there

- Parking is possible in the streets around the venue
- **Entrance is only possible at the main entrance and with a valid passport or ID card**

- For public transport: Use the S-Bahn S1 or S11 from Karlsruhe main station to Ettlingen, Ittersbach or Bad Herrenalb. Get out at "Erbprinz" and take the bus 107 in the direction Durlach and get off at the stop "Friedhof". The institute is located opposite the bus stop in Gutleuthausstraße 1.
  Or you can walk left from the stop "Erbprinz" on "Schillerstrasse" to the second traffic circle. From there you will see the institute building on the right. Walk straight ahead and turn right at the next street "Am Lindscharren". After about 300 m you will find the institute building on the right-hand side.



Timetable

Wednesday, Sept. 24th 2025	**Thursday, Sept. 25th 2025**
Registration with Snacks 11:00 – 12:00	**Session 5**: *Microstructures* 8:00 – 9:00 P.-A. Douissard [5.01] A. Talneau [5.02] L Wollesen [5.03]
Opening 12:00 – 12:15	**Break** 9:00 – 9:10
Session 1: *Oxide Crystals* 12:15 – 13:35 V. Wesemann [1.01] S. Inckemann [1.02] M. Bickermann [1.03] J. Kajan [1.04]	**Session 6:** *Non-Linear Optics II* 9:10 – 10:10 A. Bogas-Droy [6.01] D. Lorenz [6.02] D. Lorenz [6.03]
Break 13:35 – 13:45	**Coffee break** 10:10 – 10:40
Session 2: *Computational Methods* 13:45 – 14:45 M. Rupp [2.01] K. Meshram [2.02] Ph. Veber [2.03]	**Session 7**: *Fluoride Crystals* 10:40 – 12:00 J. Deutsch [7.01] Z. Liestmann [7.02] G. Bonetti [7.03] H. Büker [7.04]
Coffee break 14:45 – 15:15	**Lunch break** 12:00 – 13:00
Session 3: *Non-Linear Optics I* 15:15 – 16:35 M. Piotrowski [3.01] Ph. Jahn [3.02] A. El Hachmi [3.03] S. Herr [3.04]	**Session 8**: *Laser Oxide Crystals* 13:00 – 14:00 K. Goth [8.01] K. Nejezchleb [8.02] I. Arlt [8.03]
Break 16:35 – 16:45	**Closing remarks** 14:00 – 14:10
Session 4: *Visible Light Sources* 16:45 – 17:45 K.V. Lamonova [4.01] D. Rytz [4.02] Ch. Kraenkel [4.03]	**Lab tours** 14:10 – 15:00
Conference Dinner 19:00	

Agenda of Sessions

Wednesday, 24.09.2025

11:00 -12:00	**Registration** **Location:** Raum 002
12:00 -12:15	**Opening**
Session 1:	**Oxide Crystals** Chair: Sebastian Schwung
12:15 – 12:35	**[1.01] – $CaTbAlO_4$: a new attractive Faraday crystal for miniature optical isolators** Volker Wesemann[a], Christoph Liebald[a], Sebastian Schwung[a] *[a] Electro-Optics Technology GmbH, Struthstraße 2, 55743 Idar-Oberstein, Germany*
12:35 – 12:55	**[1.02] – Large single crystal growth of stochiometric lithium tantalate** Sebastian Inkemann[a], Angélique Hoffmann[a], Ani Manucharyan[a], Roberts Blukis[a], Matthias Bickermann[a], Steffen Ganschow[a] *[a]Leibniz-Institut für Kristallzüchtung, Max-Born-Straße 2, 12489 Berlin, Germany*
12:55 – 13:15	**[1.03] – Crystals and Substrates for Next-Generation Oxide Semiconductor Devices** Zbigniew Galazka, Andreas Fiedler, Roberts Blukis, Christo Guguschev, Steffen Ganschow, Thomas Schröder and Matthias Bickermann *Leibniz-Institut für Kristallzüchtung (IKZ), Max-Born-Str. 2, 12489 Berlin, Germany*
13:15 – 13:35	**[1.04] – Possibilities of the Horizontal Directional Crystallization Growth Method (HDC) for Sapphire, RE:YAG and Eutectic Ceramics** Juraj Kajan[a,b], Tomáš Gregor[a,b], Pablo Westermann[b] *[a]Institute of Competitiveness and Innovations, University of Žilina, Univerzitná 8215, 010 26 Žilina, Slovakia* *[b]AT Crystals s.r.o., Rosinská cesta 9, Zilina 010 08, Slovakia*
13:35 – 13:45	Short break
Session 2:	**Computational Methods** Chair: Marc Eichhorn
13:45 – 14:05	**[2.01] – MULTI-PHYSICS SIMULATION OF SOLID-STATE LASER SYSTEMS** Marius Rupp[a], Dominik Lorenz[a,b], Katharina Goth[a], Marc Eichhorn[a,b], Christelle Kieleck[a] *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstr. 1, 76275 Ettlingen, Germany* *[b]Institute of Control Systems (IRS), Karlsruhe Institute of Technology (KIT), Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany*

14:05 – 14:25	**[2.02] – Machine Learning Framework for Derivation and Optimization of Cz-YAG Crystal Growth Recipe** Kunal Meshram[a], Milena Petkovic[a], Martin Holena[b], Natasha Dropka[a] [a]*Fundamental Description, Materials Science, Leibniz-Institut für Kristallzüchtung, Max-Born-Str. 2, 12489 Berlin, Germany* [b]*Institute of Computer Science, Czech Academy of Sciences, Pod vodárenskou věží 2, 18207 Prague, Czech Republic*
14:25 – 14:45	**[2.03] – SMART Growth: Artificial intelligence enhanced, sustainable growth of rare-earth materials based laser** Philippe Veber[a,b], Dragos Tatomirescu[a], Alexandra Popescu[a], Gabriel Buse[b], Daniel Vizman[a], Natasha Dropka[c] [a]*Faculty of Physics, Crystal growth laboratory, West University of Timișoara (Romania)* [b]*Institute for Advanced Environmental Research (ICAM), West University of Timișoara (Romania)* [c]*Leibniz Institute for Crystal Growth, IKZ, Berlin (Germany)*
14:45 – 15:15	Coffee Break
Session 3:	**Non-Linear Optics I** Chair: Christian Kränkel
15:15 – 15:35	**[3.01] – Nanohardness and laser induced optical damage studies of CdSe nonlinear crystals** Marcin Piotrowski[a], Anne Hildenbrand-Dhollande[a], Stephan Schmitt[a], Ginka Exner[b], Aleksandar Grigorov[b], and Valentin Petrov[c] [a] *French-German Research Institute, ISL, 5, rue du General Cassagnou, 68301 Saint-Louis, France* [b] *Department of Physics, Faculty of Physics and Technology, Plovdiv University Paisii Hilendarski, Plovdiv, Bulgaria* [c] *Max-Born-Institute for Nonlinear Optics and Ultrafast Spectroscopy, Max-Born-Str. 2A, 12489 Berlin, Germany*
15:35 – 15:55	**[3.02] – Technology Platforms for All-Wavelengths UV/DUV** Philipp Jahn[a], Sven Höfer[a], Marcel Holtz[a], Matthias Scholz[a] [a] *TOPTICA Photonics SE, Lochhamer Schlag 19, 82166 Gräfelfing, Germany*
15:55 – 16:15	**[3.03] – Synthesis, crystal structure, and optical properties of jeanbandyite-type FeSnO(OH)5 via co-precipitation method** Abdelhadi El Hachmi[a], Goutam Biswas[b], Subhadeep Sen[b], Bouchaib Manoun[c,d], Khalid Draoui[a], Zouhair Sadoune[f]. [a]Abdelmalek Essaadi University, Department of Chemistry, Faculty of Science, 93002 Tetouan, Morocco [b]Cooch Behar Panchanan Barma University, Department of Chemistry, Cooch Behar, India [c]Hassan 1st University, Faculty of Sciences and Technologies, 26000 Settat, Morocco [d]University Mohammed VI Polytechnic, Materials Science and Nano–engineering, 43150 Ben Guerir, Morocco [f]Ibn Tofail University, Department of Physics, Faculty of Science, 14000 Kenitra, Morocco

16:15 – 16:35	**[3.04] – Continuous-wave UV generation in $BaMgF_4$** Simon Herr, Hiroki Tanaka[b], Gaetano Bonetti[b], Milena Hugenschmidt[a], Matthias Bickermann[b], Frank Kühnemann[a,c] [a] *Fraunhofer Institute for Physical Measurement Techniques IPM, Georges-Köhler-Allee 301, 79110, Freiburg, Germany,* [b] *Leibniz-Institut für Kristallzüchtung (IKZ), Max-Born-Str. 2, 12489 Berlin, Germany,* [c] *University of Freiburg, Institute of Physics, Freiburg, Germany*
16:35 – 16:45	Short break
Session 4:	**Visible Light Sources** Chair: Philippe Veber
16:45 – 17:05	**[4.01] – The Key Role of ns^2 Ions in the Formation of the Optical Spectrum in the $Cs_2NaInCl_6$ Double Perovskite Doped with Sb** Inna A. Ivashchenko[a], Lubomir D. Gulay[b], Yurii Kazarinov[c], Karyna V. Lamonova[d], Yevheniia Smortsova[e], Aleksandr. I. Popov[f], E. Małgorzata Makowska-Janusik[g], and Katarzyna Matras-Postołek[a] [a] *Faculty of Chemical Engineering and Technology, Cracow University of Technology, 31-155 Cracow, Polanda* [b]*Lesya Ukrainka Volyn National University, 43000 Lutsk, Ukraine* [c] *NSC Kharkiv Institute of Physics and Technology, 61108 Kharkiv, Ukraine* [d] *Donetsk Institute for Physics and Engineering named after O.O.Galkin, NAS of Ukraine, 03028 Kyiv, Ukraine* [e]*Deutsches Elektronen-Synchrotron DESY, 22607 Hamburg, Germany* [f]*Institute of Solid State Physics, University of Latvia, Riga, LV-1063, Latvia* [g]*Faculty of Science and Technology, Jan Długosz University, 42-200 Czestochowa, Poland*
17:05 – 17:25	**[4.02] – Phosphorescent single crystals with tridymite or garnet structures** Daniel Rytz[a], Corinne Siegrist[a], Barbara Frossard[a], Sofie Boons[b], [a] *BREVALOR Sàrl, Impasse des Frênes 1, CH – 1669 Les Sciernes, Switzerland* [b]*University of the West of England, Bristol, United Kingdom*
17:25 – 17:45	**[4.03] – New 'old' laser transitions in Tm^{3+}-doped fluoride crystals** Sascha Kalusniak, Moritz Badtke, Hiroki Tanaka, Christian Kränkel *Leibniz-Institut für Kristallzüchtung (IKZ), Max-Born-Str. 2, 12489 Berlin, Germany*
19:00	Conference Dinner

Thursday, 25.09.2025

Session 5:	**Microstructures** Chair: Matthias Bickermann
08:00 – 08:20	**[5.01] – Micro-patterning of scintillating films by Liquid Phase Epitaxy** Paul-Antoine Douissard[a], Laura Wollesen[b], Kristof Pauwels[a], *Pavel Loiko[d], Gurvan Brasse[d], Sebastian Johann Simeth[e], Martin Reinighaus[e], Julien Mathieu[a], Christophe Dujardin[b,c], Patrice Camy[d], Thierry Martin[a]* *[a] ESRF - The European Synchrotron, 71 avenue des Martyrs, Grenoble, 38000, France [b],* *[b] Université Claude Bernard Lyon 1, Institut Lumière Matière UMR 5306 CNRS, 10 rue Ada Byron, Villeurbanne, 69622, France* *[c]Institut Universitaire de France (IUF), 1 rue Descartes, Paris, 75231, France* *[d]Centre de Recherche sur les Ions, les Matériaux et la Photonique (CIMAP), UMR 6252 CEA-CNRS-ENSICAEN, Université de Caen, 6 Boulevard Maréchal Juin, Caen Cedex 4, 14050, Normandie, France* *[e]Fraunhofer Institute for Laser Technology ILT, Steinbachstr. 15, Aachen, 52074, North Rhine-Westphalia, Germany*
08:20 – 08:40	**[5.02] – Hybrid optical quantum technology platform: Y_2SiO_5 bonded on glass and Dry-etched waveguides** Anne Talneau[3], Mickael Chan[1, 2, 3], Alban Ferrier[4, 5], Perrine Berger[2], Sacha Welinski[2] *[1]Thales SIX GTS France, Gennevilliers, 92230, France* *[2]Thales Research and Technology, Palaiseau, 91767, France* *[3]Centre de Nanosciences et de Nanotechnologies, C2N, CNRS, Université Paris-Saclay, Palaiseau, 91120, France* *[4]Chimie ParisTech, PSL University, CNRS, Institut de Recherche de Chimie, Paris, 75005, France* *[5]Faculté des Sciences et Ingénierie, Sorbonne Université, UFR933, 75005 Paris, France*
08:40 – 09:00	**[5.03] – Ruby single crystal fibers grown by the micro-pulling down technique: A Study by synchrotron X-ray computed tomography** Laura Wollesen[a], Florian Jurries[b], Abdeldjelil Nehari[a], Serge Labor[c], Guillaume Alombert-Goget[c], Denis Guignier[c], Kheirreddine Lebbou[a] *[a] Institut Lumière Matière, Université Lyon 1 - UMR 5306 CNRS, 69622 Villeurbanne, France* *[b] ESRF - The European Synchrotron, 71 avenue des Martyrs, Grenoble, 38000, France* *[c] RSA le rubis SA, BP 16, 38560 Jarrie/Grenoble, France*
09:00 – 09:10	Short break

Session 6:	**Non-Linear Optics II** Chair: Ralf Knappe
09:10 – 09:30	**[6.01] – Narrowband ZGP OPO emission at 3.98 µm in non-planar ring cavity with Si etalons** Achille Bogas-Droy[a], Marcin Piotrowski[a], Gerhard Spindler[b], Stefano Bigotta[a], Anne Hildenbrand-Dhollande[a], *[a] French-German Research Institute, ISL, 5, rue du General Cassagnou, 68301 Saint-Louis, France* *[b]Independent Researcher, Untere Gaisäckerstr, 10, 79761 Waldshut-Tiengen, Germany*
09:30 – 09:50	**[6.02] – Actively pulse-shaped 2.05 µm PCF MOPA for CSP and ZGP OPO pumping** Dominik Lorenz[a,b], Julian Schneider[a,b], Clément Romano[a], Dieter Panitzek[a,b], Madeleine Eitner[a], Marc Eichhorn[a,b], Christelle Kieleck[a] *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstraße 1, 76275 Ettlingen, Germany* *[b]Institute of Control Systems, Karlsruhe Institute of Technology, Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany*
09:50 – 10:10	**[6.03] – All-fiber PCF-MOPA–pumped CSP and ZGP doubly resonant OPOs for efficient high-power mid-IR generation** Dominik Lorenz[a,b], Julian Schneider[a], Clément Romano[a], Dieter Panitzek[a,b], Madeleine Eitner[a], Marc Eichhorn[a,b], Christelle Kieleck[a] *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstraße 1, 76275 Ettlingen, Germany* *[b]Institute of Control Systems, Karlsruhe Institute of Technology, Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany*
10:10 – 10:40	Coffee Break
Session 7:	**Fluoride Crystals** Chair: Christelle Kieleck
10:40 – 11:00	**[7.01] – Studies and simulation of Ho^{3+}:$LuLiF_4$ as a laser gain medium in high-energy pulse-laser** Johannes Deutsch[a], Madeleine Eitner[a], Katharina Goth[a], Marius Rupp[a],Marc Eichhorn[a,b], Christelle Kieleck[a] *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstraße 1, 76275 Ettlingen, Germany* *[b]Institute of Control Systems, Karlsruhe Institute of Technology, Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany* *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstr. 1, 76275 Ettlingen, Germany*
11:00 – 11:20	**[7.02] – Growth and spectroscopy of Tm^{3+}- and Ho^{3+}-doped BaY_2F_8 for laser cooling** Zoe Liestmann, Hiroki Tanaka *Leibniz-Institut für Kristallzüchtung, Max-Born-Str. 2, 12489 Berlin, Germany*
11:20 – 11:40	**[7.03] – Growth of UV-transparent $BaMgF_4$ single crystals.** Gaetano Bonetti, Roberts Blukis, Shoichi Ui, Matthias Bickermann and Hiroki Tanaka *Leibniz-Institut für Kristallzüchtung (IKZ), Max-Born-Str. 2, 12489 Berlin, Germany*

11:40 – 12:00	**[7.04] – Ce^{3+}:LiCAF Laser development for ion beam production** Hendrik Büker[a,b], Eduardo Granados[a], Katerina Chrysalidis[a], Marc Eichhorn[b,c] *[a]European Organization for Nuclear Research (CERN), Espl. Des Particules 1, 1217 Genève, Switzerland* *[b]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstraße 1, 76275 Ettlingen, Germany* *[c]Institute of Control Systems, Karlsruhe Institute of Technology, Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany*
12:00 – 13:00	Lunch break
Session 8:	**Laser Oxide Crystals** Chair: Daniel Rytz
13:00 – 13:20	**[8.01] – Power Scaling of Ho^{3+}:YAG Lasers with Homogeneous and Segmented Crystals** Katharina Goth[a], Marius Rupp[a], Madeleine Eitner[a], Marc Eichhorn[a,b], Christelle Kieleck[a] *[a]Fraunhofer IOSB (Institute of Optronics, System Technologies and Image Exploitation), Gutleuthausstraße 1, 76275 Ettlingen, Germany* *[b]Institute of Control Systems, Karlsruhe Institute of Technology, Fritz-Haber-Weg 1, 76131 Karlsruhe, Germany*
13:20 – 13:40	**[8.02] – Ho:YAP crystals for 2.1 µm solid state lasers** Karel Nejezchleb[a], Matik Klejch, Jan Polák[a], Miroslav Coubal[b], Jan Šulc[b] *[a]Crytur Ltd., Na Lukách 2283, CZ-51101 Turnov, Czech Republic* *[b]Czech Technical University in Prague, Faculty of Nuclear Sciences and Physical Engineering, Břehová 7, CZ-11519 Prague, Czech Republic*
13:40 – 14:00	**[8.03] – Investigation of the Miscibility Gap in the Binary Y2O3-Sc2O3 System and it's Impact on Crystal Growth** Ines Arlt[a], Roberts Blukis[a], Steffen Ganschow[a], Christian Kränkel[a] *[a]Leibniz Institut für Kristallzüchtung (IKZ), Max-Born-Str 2, 12489 Berlin, Germany*
14:00 – 14:10	Closing remarks
14:10 – 15:00	Lab tours