# ECG6

## PROGRAMME

# SESSIONS AND TOPICS

**SESSION 7** *Chairs: Giuseppe Falini and Stéphane Veesler*

**Crystallization in Organic and Biological Systems**

*Advances in growth of organic, macromolecular and biomolecular crystals. Protein and polymer crystalline materials. Bio-mineralization and bio-inspired crystallization.*

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**SESSION 8** *Chairs: Heike Lorenz and Kevin Roberts*

**Industrial Crystallization, Technologies and Process Control**

*Crystallization for industrial applications. New equipment and technologies. Food, cosmetic, and pharmaceutical products.*

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**SESSION 9** *Chairs: Raffaella Lo Nigro and Dorota A. Pawlak*

**Novel Materials and Structures**

*New materials and structures with specific or improved properties and/or newly-designed applications. Inorganic and organic hybrid structures. Applications in areas of energy conversion, storage, magnetics, optoelectronics, quantum computation, nanoelectromechanical systems, and semiconductor electronics.*

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**SESSION 10** *Chairs: Christiane Frank-Rotsch and Evgeny Zharikov*

**New Methods and Techniques for Crystal Growth**

*Crystal growth under variety of external fields and extreme conditions – electric fields, magnetic fields, hyper and micro gravity, radiation, vibration, ultrasonic, high pressure, thermal and mechanical stress, etc.*

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**SESSION 11** *Chairs: Florinda da Costa and Ionut Enculescu*

**Advances in Observation and Characterization Methods**

*In-situ monitoring methods and analysis of physical, structural and chemical properties of crystals. Microscopy, spectroscopy, scattering, and other characterization techniques.*

# SESSIONS AND TOPICS

**SESSION 1** *Chairs: Dimo Kashchiev and Elias Vlieg*
**Fundamentals of Nucleation and Crystal Growth**
*Theory, modeling, and experiment.*

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**SESSION 2** *Chairs: Thierry Duffar and Daniel Vizman*
**Bulk Crystal Growth**
*Crystallization mechanisms, morphology, growth instabilities, crystallography. Growth technologies and process control.*

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**SESSION 3** *Chairs: Knut Deppert and Michal Leszczynski*
**Surfaces, Interfaces, Epitaxial Growth, Thin Films**
*Structure and properties of solid-vapor, solid-liquid and solid-solid interfaces and surface morphology. Physical, chemical, and technological aspects of thin film formation and epitaxial growth.*

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**SESSION 4** *Chairs: Andreas Danilewsky and Bogdan Ranguelov*
**Structural Defects and Impurities in Crystalline Materials**
*Mechanisms of defect formation in crystals, crystalline structure, physical properties, surface and bulk defects.*

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**SESSION 5** *Chairs: Vladimir Dubrovskii and Michail Michailov*
**Crystal Growth and Characterization of Nanostructures, Low-dimensional and Confined Systems**
*Nanoparticles, quantum dots, nanowires, nanotubes, and other low dimensional structures. Fabrication by lithography, self-assembly, chemical synthesis, etc.*

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**SESSION 6** *Chairs: Alberta Bonanni and Linda Pastero*
**Crystallization of Inorganic Materials**
*Growth of advanced inorganic materials. Crystallization in solid-vapor, solid-liquid and solid-solid systems. Crystalline structure, and physical properties. Mesocrystals and colloidal systems.*

## 16.09.2018 (SUN)

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| 14:00–20:00 | **REGISTRATION** – Riviera Beach Hotel – New Event Reception desk |
| 18:00–20:00 | **WELCOME** reception ECCG6 – Riviera Terrace |

## 17.09.2018 (MON)

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| 08:45–09:15 | **Opening ceremony – Hall „Riviera"** | |
| 09:15–10:10 | **Tom Leyssens**<br>*Application philosophies for multi-component crystal systems*<br>**Plenary lecture**<br>**Hall „Riviera"** | |
| 10:10–10:20 | **Parallel sessions** | |
| | **Session 01,**<br>Chairs: *Dimo Kashchiev, Elias Vlieg*<br>**Hall „Riviera"** | **Session 09,**<br>Chairs: *Raffaella Lo Nigro, Dorota Pawlak*<br>**Hall „Conference"** |
| 10:20–10:55 | **Romain Grossier**<br>*Crystal nucleation in microdroplets*<br>**S01–I1** | **Roberto Fornari**<br>*Thin films of epsilon-Ga2O3 polymorph: doping, properties and applications*<br>**S09–I1** |
| 10:55–11:15 | Coffee break | |
| 11:15–11:50 | **Frank Glas**<br>*The driving force for truncation formation at the liquid–solid interface during nanowire growth*<br>**S01–I2** | **Martin Valldor**<br>*Anti–Perovskite Lithium Battery Cathodes*<br>**S09–I2** |
| 11:50–12:25 | **Wim Noorduin**<br>*Controlling nucleation, growth and form of bio–inspired minerals*<br>**S01–I3** | **Dumitru Dumcenco**<br>*Growth of van der Waals magnetic semiconductor materials*<br>**S09–O1** ***ends 12:15*** |
| 12:25–13:00 | **Luis Zepeda-Ruiz**<br>*Nucleation and crystallization kinetics in simple melts: modeling basic phenomena*<br>**S01–I4** | **Ionut Enculescu**<br>*Nanowire based electronic devices*<br>**S09–O2**<br>***ends 12:50*** |

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| 13:00–13:25 | **Marcel Rost**<br>*When vapor deforms metal: Thermodynamics of deposition flux dependent intrinsic film stress*<br>**S01–O1** | **Raffaella Lo Nigro**<br>*Structural and electrical properties ofepitaxial AlN films on GaN grown by low temperature plasma-assistedatomic layer deposition*<br>**S09–O3** |
| 13:25–16:00 | Lunch break | |
| 16:00–16:25 | **Noushin Shahidzadeh**<br>*Hopper growth of salt crystals*<br>**S01–03** | **Dmitry Dominskiy**<br>*Molecular self-doping controls luminescent and charge transport properties in organic semiconductor single crystals*<br>**S09–O4** |
| 16:25–16:50 | **Ondrej Cernohorsky**<br>*Hydrothermal growth of ZnO nanorods: modelling of supersaturation in batch and flow reactors*<br>**S01–04** | **Dorota Pawlak**<br>*Plasmonic materials/metamaterials and other novel photonic materials obtained by crystal growth*<br>**S09–O5** |
| 16:50–17:10 | Coffee break | |
| 17:10–17:40 | **Koichi Kakimoto**<br>*Tribute to Michael Schieber*<br>**Memorial lecture,**<br>**Hall „Riviera“** | |
| 17:40–17:50 | **Parallel sessions** | |
| | **Session 08,**<br>Chairs: *Heike Lorenz, Kevin Roberts*<br>**Hall „Riviera“** | **Session 10,**<br>Chairs: *Christiane Frank–Rotsch, Evgeny Zharikov*<br>**Hall „Conference“** |
| 17:50–18:25 | **Stéphane Veesler**<br>*Microfluidics crystallization in tubes (nucleation, optimization, screening...)*<br>**S08–I1** | **Vladimir Golyshev**<br>*AHP technology: controlled crystal growth from melt*<br>**S10–I1** |
| 18:25–19:00 | **Adrian Flood**<br>*New developments in temperature cycle induced deracemization*<br>**S08–I2** | **Zbigniew Galazka**<br>*New methods for growing thermally unstable oxide single crystals from melt*<br>**S10–I2** |

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| 19:00–19:25 | **Pablo Soladana**<br>*Crystal growth and nucleation in continuous microfluidic crystallization platform*<br>**S08–01** | **Sanne Granneman**<br>*Magnetic field induced polymorph selection*<br>**S10–O1** |
| 19:25–21:00 | Dinner break | |
| 21:00–23:00 | **First POSTER SESSION – Hall „Seminar"** | |
| | Session 01, Session 03, Session 08, Session 09, Session 10, Session 11 | |

## 18.09.2018 (TUE)

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| 09:00–09:55 | **Fiona Meldrum**<br>*Controlling Crystallisation using Confinement and Surface Topography*<br>**Plenary lecture, Hall „Riviera"** | |
| 09:55–10:05 | **Parallel sessions** | |
| | **Session 03,**<br>Chairs: *Knut Deppert, Michal Leszczynski*<br>**Hall „Riviera"** | **Session 02,**<br>Chairs: *Thierry Duffar, Daniel Vizman*<br>**Hall „Conference"** |
| 10:05–10:40 | **Jonas Johansson**<br>*Understanding the composition of epitaxially grown ternary III–Vnanowires*<br>**S03–I1** | **Alexandre Tallaire**<br>*Controlling defects during the growth of large size diamond single crystals by plasma assisted chemical vapour deposition*<br>**S02–I1** |
| 10:40–11:15 | **Yu Liu**<br>*Semiconductor /ferromagnetic insulator InAs/EuS epitaxy*<br>**S03–I2** | **Biao Wang**<br>*The automatic growth system with in–situ interface detection and energy–saving features*<br>**S02–I2** |
| 11:15–11:35 | Coffee break | |
| 11:35–12:10 | **Jesus Zuniga Perez**<br>*Growth of semipolar GaN by MOVPE: from patterned substrates to high–quality templates*<br>**S03–I3** | **Stefan Ecklebe**<br>*Control of the VGF Process I: Feedforward Control and Flatness Based State Feedback*<br>**S02–I3** |
| 12:10–12:35 | **Stefano Curiotto**<br>*Dynamics of Si surface nanostructures under electromigration*<br>**S03–O1** | **Andrea Zappettini**<br>*New advancements towards spectroscopic grade CdZnTe material by the boron oxide encapsulated vertical Bridgman method*<br>**S02–O1** |

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| 12:35–13:00 | **Dmitry Rogilo**<br>*Concentration distribution of adatoms and surface vacancies on extremely wide Si(111) terraces during sublimation*<br>**S03–O2** | **Maria Tsoutsouva**<br>*Growth kinetics and defects associated with the formation of a random grain boundary during Si directional solidification*<br>**S02–O2** |
| 13:00–13:25 | **Alexandr Nikiforov**<br>*Elastically stressed pseudomorphic GeSiSn film growth*<br>**S03–O3** | **Armands Krauze**<br>*3D modeling of growth ridge and edge facet formation in <100> FZ silicon crystal growth process*<br>**S02–O3** |
| 13:25–15:50 | Lunch break | |
| 14:30 – 15:50 | **ENCG Members – ENCG Council Meeting**<br>**Hall „Conference“** | |
| 15:50–16:00 | **All together photo** | |
| 16:00–16:45 | **Michail Michailov**<br>*Iwan N. Stranski and the Sofia school of crystal growth*<br>**Memorial lecture, Hall „Riviera“** | |
| 16:45–17:00 | **Parallel sessions** | |
| 17:00–17:25 | **Vladimir Tassev**<br>*Heteroepitaxy of nonlinear optical material for frequency conversion of laser sources in the mid and longwave IR*<br>**S03–O4** | **Frank M. Kiessling**<br>*Technology Development of High–Purity Germanium Crystals for Detectors to Be Used in GERDA and LEGEND*<br>**S02–O4** |
| 17:25–17:50 | **Mohsin Qazi**<br>*Creeping of salt solutions*<br>**S03–O5** | **Iaroslaw Gerasymov**<br>*Methods for luminescence decay control in YAG–based crystals*<br>**S02–O5** |
| 17:50–18:10 | Coffee break | |
| | **Session 11,**<br>Chairs: *Florinda Costa, Ionut Enculescu*<br>**Hall „Riviera“** | |
| 18:10–18:45 | **Cristian Teodorescu**<br>*Photoelectron spectroscopy and spectro–microscopy techniques in studies of surfaces of ferroelectric materials*<br>**S11–I1** | **Martin Klejch**<br>*Growth of radiation hard PWO crystals in open furnaces*<br>**S02–O6** |

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| 18:45–19:10 | **Louiza Ejim**<br>*Characterization of Continuous Crystallization Deposition on Surfaces*<br>**S11–O1** | **Mathias Velazquez**<br>*Czochralski growth of Li2MoO4 crystals for the scintillating bolometers used in the rare events searches*<br>**S02–O7** |
| | **Session 04,**<br>Chairs: *Andreas Danilewsky, Bogdan Ranguelov*<br>**Hall „Riviera“** | **Session 07,**<br>Chairs: *Giuseppe Falini, Stephane Veesler*<br>**Hall „Conference“** |
| 19:10–19:35 | **Per Persson**<br>*The application of advanced electron microscopy in 3D and 2D materials*<br>**S04–I1** | **Dominique Maes**<br>*Do protein crystals and aggregates go with the flow?*<br>**S07–I1** |
| 19:35–21:00 | Dinner break | |
| 21:00–23:00 | **Second POSTER SESSION – Hall „Seminar“** | |
| | Session 02, Session 04, Session 05, Session 06, Session 07 | |

## 19.09.2018 (WED)

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| | **Session 07,**<br>Chairs: *Giuseppe Falini, Stephane Veesler*<br>**Hall „Riviera“** | **Session 05,**<br>Chairs: *Michail Michailov, Vladimir Dubrovskii*<br>**Hall „Conference“** |
| 09:00–09:35 | **Damir Kralj**<br>*TInteractions between calcite and selected oligopeptides and their functional derivatives*<br>**S07–2** | **Joan Redwing**<br>*Epitaxy of 2D transition metal dichalcogenides*<br>**S05–I1** |
| 09:35–10:00 | **Linda Pastero**<br>*Interactions at the surfaces in bio-apatites*<br>**S07–O1** | **Martin Groenke**<br>*Crystal growth of 2D honeycomb transition metal halide MX3 nanosheets by chemical vapor transport (CVT)*<br>**S05–O1** |
| 10:00–10:35 | **Jose Gavira**<br>*Protein crystallization in hydrogels, What for?*<br>**S07–O2**<br>***ends 10:25*** | **Michael Tringides**<br>*Non–classical, explosive nucleation and collective, multi–atom diffusion in epitaxial metallic films*<br>**S05–I2** |

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| **10:35–11:00** | **Yi-Yeoun Kim**<br>*Bio-Inspired Approaches to Creating Functional Nanocomposite Crystals*<br>**S07–O3** | **Nickolay Sibirev**<br>*Comparison of gold and silver catalyzed growth of GaAs nanowires*<br>**S05–O2** |
| **11:00–11:20** | Coffee break | |
| | **Session 04,**<br>Chairs: *Andreas Danilewsky, Bogdan Ranguelov*<br>**Hall „Riviera“** | |
| **11:20–11:55** | **Helmut Klapper**<br>*The generation of growth dislocations by inclusions and growth-face damages: an experimental study*<br>**S04–I2** | **Simon Watkins**<br>*Novel methods for the growth and characterization of single nanowire semiconductor structures*<br>**S05–I3** |
| | | **Session 06,**<br>Chairs: *Alberta Bonanni, Linda Pastero*<br>**Hall „Conference“** |
| **11:55–12:30** | **Sergei Sitnikov**<br>*Real-time observation of self-interstitial transfer onto an atomically smooth Si(111) surface at gold diffusion into the volume*<br>**S04–O1** ***ends 12:20*** | **Denis Gebauer**<br>*Amorphous intermediates in crystallization: from polyamorphism to crystal growth and superstructure formation*<br>**S06–I1** |
| **12:30–13:05** | **Carmen Stelian**<br>*Effect of the solid–liquid interface shape on the colony type microstructure of directionally solidified Al2O3/Y3Al5O12/ZrO2 eutectic composite*<br>**S04–O2** ***ends 12:55*** | **Henk Huinink**<br>*Utilizing solid–solid transitions in crystal hydrates for heat storage*<br>**S06–O1** |
| **13:05–15:00** | Lunch break | |
| | **Session 01,**<br>Chairs: *Dimo Kashchiev, Elias Vlieg*<br>**Hall „Riviera“** | |
| **15:00–15:35** | **Michael Gonik**<br>*Axial segregation in crystal growth from a thin melt layer*<br>**S01–02** ***ends 15:25*** | **Michał Boćkowski**<br>*Bulk growth of GaN – status, perspectives and trends*<br>**S06–I2** |

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| **15:35–16:00** | **Svetlozar Ivanov**<br>*Understanding the initial stages of Si electrode-position in ionic liquid based electrolytes*<br>**S01–05** | **Emel Akyol**<br>*The effects of avocado leaves extract on calcium oxalate monohydrate growth: An in vitro study*<br>**S06–O2** |
| **16:00–16:25** | | **Matias Velazquez**<br>*Multiscale characterization of the point defect disorder in high–temperature solution grown crystals of the new phase Sr6Tb0.94Fe1.06 (BO3)6*<br>**S06–O3** |
| **16:25–16:50** | **Closing, Announcement of ECCG7 and ESCG3** | |
| **18:45–20:00** | **Dinner break** | |
| **20:00–24:00** | **Farewell Party –** Riviera beach hotel<br>(Signing up at ECCG6 organizers is mandatory)<br>**ECCG6 Awards** | |

| LEGEND TIME | |
|---|---|
| **Plenary lectures** | **45’ + 10’** |
| **Invited lectures** | **30’ + 5’** |
| **Oral presentations** | **20’ + 5’** |