tandemPV INTERNATIONAL WORKSHOP

(as of 8th April 2021)

DAY 1

Tuesday, 13th April 2021 | Materials Research for Tandem Solar Cells

Topic Organizers: Steve Albrecht (HZB) | Ulrich Paetzold (KIT)

13:00 - 13:10 | Welcome | Bernd Rech (HZB)

13:10 - 14:40 | Session 01 | Passivation Strategies and Compositional Tuning for High Efficiency Perovskite PV
chair: Steve Albrecht (HZB)

- 13:10 | Pseudo-halide Anion Engineering for α-$FAPbI_3$ perovskite solar cells | *Michael Grätzel (EPFL)*
- 13:40 | Passivation approaches for high efficiency perovskite photovoltaics | *Kylie Catchpole (ANU)*
- 14:00 | The versatility of multicomponent perovskites | *Michael Saliba (U Stuttgart)*
- 14:20 | Highest voltage wide bandgap perovskite top cells | *Ulrich Paetzold (KIT)*

14:40 - 15:00 | Break

15:00 - 16:10 | Session 02 | Bandgap Engineering and stability of perovskite cells for tandems
chair: Michael Saliba (U Stuttgart)

- 15:00 | Module Designs That Will Promote Stability for Perovskite Tandems | *Michael McGehee (U Colorado / NREL)*
- 15:30 | Process modifications for transparent electrodes and bandgap tuning of perovskites in tandem architectures | *Tom Aernouts (imec)*
- 15:50 | High Band Gap Perovskite Absorbers for Monolithic Perovskite Silicon Tandem Solar Cells | *Patricia Schulze (Fraunhofer ISE)*

16:10 - 16:40 | Break

16:40 - 17:30 | Session 03 | High Efficiency Perovskite Solar Top Cells for Tandems (I)
chair: Ulrich Paetzold (KIT)

- 16:40 | Understanding and achieving high open-circuit voltage in stable wide band gap perovskite solar cells | *Ashley Marshall (U Oxford)*
- 17:10 | Toward Large Area Perovskite/Silicon and Perovskite/Perovskite Tandem Cells/Modules | *Jinsong Huang (U North Carolina)*

17:30 - 17:45 | Break

17:45 | Virtual Tour of HZB's HySPRINT Lab

DAY 2

Wednesday, 14th April | Tandem Solar Cell Devices: Materials & Concepts

Topic Organizers: Stefan Glunz (ISE) | Lars Korte (HZB)

13:00 - 13:50 | Session 04 | High Efficiency Perovskite Solar Top Cells for Tandems (II)
chair: Lars Korte (HZB)

- 13:00 | Strategies toward efficient and stable monolithic all-perovskite tandem solar cells | *Hairen Tan (U Nanjing)*
- 13:30 | Monolithic Perovskite Tandem Solar Cells: Towards 30% Efficiency | Steve *Albrecht (HZB)*

13:50 - 15:20 | Poster Session 01 | Single junctions, materials, characterization
chair: Silvia Mariotti (HZB)

15:20 - 16:50 | Session 05 | Device Concepts
chair: Stefan Glunz (ISE)

- 15:20 | Perspectives on x-terminal silicon tandem solar cells | *Tobias Wietler (ISFH)*
- 15:50 | Pero/CIGS Tandems | *Yang Yang (UCLA)*
- 16:10 | 3T and 4T tandems using III-Vs and Si | *Adele Tamboli (NREL)*
- 16:30 | Device concepts and stability | *Antonio Abate (HZB)*

16:50 - 17:10 | Break

17:10 - 17:55 | Panel Discussion 01 | Which tandems are most promising?

- ***moderator**: Christophe Ballif (EPFL & CSEM)*
- ***panelists**: Chris Case (Oxford PV), Frank Dimroth (Fraunhofer ISE), Tomas Leijtens (Swift Solar), Michael Powalla (KIT)*

17:55 - 18:00 | Break

18:00 | Virtual Tour of HZB's HySPRINT Lab

DAY 3

Thursday, 15th April | Tandem Solar Cell Devices: Fabrication & Characterization

Topic Organizers: Stefan Glunz (ISE) | Lars Korte (HZB)

13:00 - 14:30 | Session 06 | Device Fabrication & Processing
chair: Thomas Kirchartz (U Duisburg-Essen & FZJ)

- 13:00 | Monolithic perovskite/silicon tandems on textured wafers: fabrication and outdoor performance | *Stefaan de Wolf (KAUST)*
- 13:30 | Tandem PK/c-Si cells and modules on textured and flat substrates | *Christophe Ballif (EPFL & CSEM)*
- 13:50 | Evaporated perovskites for tandem solar cells | *Henk Bolink (U Valencia)*
- 14:10 | Upscaling printed PV technologies: transferring knowhow from organics to perovskites | *Christoph Brabec (U Erlangen-Nürnberg)*

14:30 - 14:50 | Break

14:50 - 16:00 | Session 07 | Device Characterization & Calibration
chair: Christoph Brabec (U Erlangen-Nürnberg)

- 14:50 | Interface Recombination, Halide Segregation and Ion Motion in Metal-Halide Perovskites: From QFLS to V_{oc} | *Dieter Neher (U Potsdam)*
- 15:20 | Characterizing recombination losses at different bias points of a solar cell | *Thomas Kirchartz (U Duisburg-Essen & FZJ)*
- 15:40 | Calibrated measurement of tandem solar cells | *Jochen Hohl-Ebinger/Gerald Siefer (Fraunhofer ISE)*

16:00 - 17:30 | Poster Session 02 | Tandem and triple junction cells
chair: Lars Korte

DAY 4

Friday, 16th April | Upscaling - Industrialisation - Yield (Industry Day)

Topic Organizers: Radovan Kopecek (ISC) | Delfina Munoz (INES)

13:00 - 14:30 | Session 08 |Industrial Challenges for Tandem | Device Manufacturing
chair: Radovan Kopecek (ISC)

- 13:00 | tandemPV: status, challenges and opportunities | *Solenn Berson (INES)*
- 13:30 | Tandem production in Brandenburg | *Dan Kirk (OxPV)*
- 13:50 | Unique manufacturing challenges in Perovskite-Perovskite tandems | *Thomas Leijtens (Swift)*
- 14:10 | Tandem PV industrialization – technology, cost and environmental aspects | *Lars Oberbeck (IPVF/TOTAL)*

14:30 - 14:50 | Break

14:50 - 15:30 | Session 09 | Industrial Challenges for Tandem | Equipment Manufacturing
chair: Delfina Munoz (INES)

- 14:50 | Scaling of Tandem PV Equipment: From lab to fab | *Sebastian Gatz (von Ardenne)*
- 15:10 | From small scale R&D to high volume production | *Olle Lundberg (Evolar AB)*

15:30 - 16:40 | Session 10 | Applications, Bankability, Outdoor Performance
chair: Delfina Munoz (INES)

- 15:30 | What about bankability? | *Radovan Kopecek (ISC Konstanz)*
- 15:50 | 4T Tandem PV technology for industrial application | *Gianluca Coletti (Solliance)*

16:10 - 16:40 | Panel Discussion 02 | What is essential/missing for industrial implementation?

- ***moderator**: Roch Drozdowski-Strehl (IPVF)*
- ***panelists**: Sebastian Gatz (von Ardenne); Olle Lundberg (Evolar AB); Radovan Kopecek (ISC Konstanz); Gianluca Coletti (Solliance); Solenn Berson (INES); Dan Kirk (OxPV); Thomas Leijtens (Swift Solar); Lars Oberbeck (IPVF/TOTAL)*

16:40- 17:00 | Closing & Award Ceremony