

Tuesday, 06 April 2010

Hotel Novotel Freiburg am Konzerthaus

1700-2000 **Pre-Registration Hours**

Address: Konrad-Adenauer-Platz 2, Freiburg (next to the Congress Centre Concert Hall Freiburg)

Wednesday, 07 April 2010

Congress Centre Concert Hall Freiburg

0830-1700 **Registration Hours**

0900-0920 **Welcome Addresses**

A. Bett, Conference Chair

E. Weber, Director of Fraunhofer ISE

R. Mülhaupt, Director of Freiburger Material Forschungszentrum, University Freiburg

0920-1000 **Invited Lecture** (30+10 min)

The Promise and Non-Promise of CPV Technology – From the Past until Today

D. Swanson

1000-1045 **Coffee Break**

Coffee breaks can be enjoyed in the catering areas around the conference room.

1045-1200 **Oral Session 1: CPV Power Plant Performance**

Chair: *G. Sala*, *N. Hartsch*

- III-V Multi-Junction Cells in Amonix Solar Power Generators

G.S. Kinsey, *R. Gordon*, *K. Stone*, *V. Garboushian*

- Field Performance of FLATCON® Power Plants and Demo Systems

A. Gombert, *I. Heile*, *J. Wüllner*, *T. Gerstmaier*, *S. van Riesen*, *E. Gerster*, *M. Röttger*

- World's First Demonstration of a 140kWp Heliostat Concentrator PV (HCPV) System (an Update)

J.B. Lasich, *P.J. Verlinden*, *A. Lewandowski*, *D. Edwards*, *H. Kendall*, *S. Carter*, *I. Thomas*, *M. Wright*, *W. Hertaeg*, *M. Daly*, *M. Santin*, *A. Newmann*, *A. Wilson*

- Performance of the 30 kW CPV System Installed in Coastal Area in Japan

K. Araki

- First Experiences of ISFOC in the Maintenance of CPV Plants

D. Sánchez, *E. Gil*, *M. Martinez*, *F. Rubio*, *J.L. Pachón*

1200-1330 **Lunch Break**

Lunch will be served in the catering areas around the conference room.

1330-1530 **Oral Session 2: CPV Module Performance, Reliability**

Chair: *S. Kurtz*, *K. Araki*

- CPV 30% Module Efficiency Milestone

R. Gordon, *G.S. Kinsey*, *A.B. Nayak*, *V. Garboushian*

- A New Approach for a Low Cost CPV Module Design Utilizing Micro-Transfer Printing Technology

S. Burroughs, *B. Furman*, *E. Menard*, *A. Gray*, *M. Meitl*, *S. Bonafede*, *D. Kneeburg*, *K. Ghosal*, *R. Bukovnik*, *W. Wagner*, *S. Seel*, *R. Conner*, *M. Sullivan*

- Demonstration of a 7.5kW 900X HCPV System

C.-Y. Chen, *H.-Z. Kuo*, *H.-F. Hong*, *H.-Y. Shin*, *C.-T. Kuo*

- HCPV Modules with Primary and Secondary Minilens Panels

N.A. Sadchikov, *V.D. Rumyantsev*, *N.Y. Davidiyuk*, *E.A. Ionova*, *D.A. Malevskiy*, *P.V. Pokrovskiy*

- Indoor Performance Rating of CPV Modules at Multiple Temperatures and Irradiance Levels

S. Askins, *C. Dominguez*, *I. Antón*, *G. Sala*

- Quantifying the Thermal Fatigue of CPV Modules
N. Bosco, S. Kurtz
- A Critique of Emcore's Third Generation CPV System
D. Buie, R. Hoffman, P. Blumenfeld, J. Foresi, J. Nagyvary, C. Dempsey
- Development and Application of Accelerated Test Methods Specific to CPV Systems
M. Spencer, M. Hirny, A. Kaplan

1530-1600 **Coffee Break**

Coffee breaks can be enjoyed in the catering areas around the conference room.

1600-1800 **Poster Session 1:** Presenters in front of the following posters:

- P 01: Thermal Regimes of Fresnel Lenses and Cells in "All-Glass" HCPV Modules
V. Rummyantsev, N.Y. Davidyuk, E.A. Ionova, P.V. Pokrovskiy, N.A. Sadchikov, V.M. Andreev
- P 07: High Efficiency, Low Cost Parabolic Dish System for the Cogeneration of Electricity and Heat
H. Chayet, I. Lozovsky, O. Kost, R. Loeckenhoff, K.-D. Rasch
- P 11: A New Approach for Low Cost CPV at gW Scale
R. Angel
- P 13: Thermal Management and Overall Performance of a High Concentration PV System
R. Ghannam, R. Waelchli, W. Escher, S. Paredes, W. Glatz, B. Michel
- P 15: Determination of Parameters of Photovoltaic Concentrating Module with Heliostat
R. Vardanyan, A. Norsoyan, V. Dallakyan
- P 17: New CPV Systems with Static Reflectors
Y. Tripanagnostopoulos, D. Chemisana, T. Makris, J.I. Rosell, M. Souliotis
- P 19: Wind Load Analysis of a Solar Tracker for Concentrator Photovoltaics
J.-C. Wu, K.-H. Lin, C.-K. Lin
- P 21: HCPV vs. PV: Shading, Tracking Strategies and Land Use
H.P. Annen, R. Leutz, L. Fu
- P 23: Intelligent Sun Tracking for a CPV Based Power Plant
I. Maqsood, M. Emziane
- P 25: Next Generation of Electro Mechanical Actuator for Solar Trackers
L. Pizzoni, S. Speziali, L. Castellini, M. Mozza, F. Perni
- P 27: Monitoring, Communications and Data Processing of CPV Plants
L. García, G. Calvo, Á. Hipólito, J.L. Pachón
- P 29: Establishment of One MW HCPV System at Taiwan
I-T. Lung
- P 31: Energy Losses Estimation for CPV Plants
O. de la Rubia, C. Alamillo, M. Martínez, A. Martín, L. García, D. Sánchez, F. Rubio, J.L. Pachón, P. Banda
- P 33: CPV Module Qualification Experiences at INTA and Amendments to IEC 62108
A. Martínez de Olcoz, J. Martín, J.R. González, G. Jüngst, J.M^a. Fernández, P. López
- P 35: Life Cycle Analysis of Amonix 7700 HCPV System
R. McConnell, V. Fthenakis, H.C. Kim
- P 37: Evaluation of Satellite Cirrus Data for Performance Models of CPV Modules
G. Peharz, L. Bugliaro, G. Siefer, A.W. Bett
- P 39: How Important is the Resolution of Atmospheric Data in Calculations of Spectral Irradiance and Energy Yield for (III-V) Triple-Junction Cells?
A. Dobbins, M. Lum, T. Tibbits
- P 41: Comparing the Energy Yield of (III-V) Multi-Junction Cells with Different Numbers of Sub-Cells
M. Lumb, A. Dobbins, T. Tibbits

- P 43: High Resolution Direct Normal Irradiance and Solar Spectral Data for Testing CPV Plants: ISFOC Data Base
A. Martín, M. Collares-Pereira, D. Sanchez, O. Rubia, F. Rubio
- **P 45: Materials for Concentrator Photovoltaic Systems: Optical Properties and Solar Radiation Durability**
R.H. French, J.M. Rodriguez-Parada, M.K. Yang, M.F. Lemon, E.C. Romano, P. Boydell
- P 47: Optimization of Secondary Concentrators with the Continuous Information Entropy Strategy
T.C. Schmidt, H. Ries
- P 49: Color Correction of Concentrator Lenses by Tailored Diffractive Elements
H. Ries, R. Jetter
- P 51: Design of a 960x Concentrating Optics with Good Tracking Error Tolerance
H. A Mughal
- P 53: Development of Lens Concentration Systems with Secondary Optical Elements
M.Z. Shvarts, A.A. Soluyanov
- P 55: Development of Secondary Optical Elements (SOE) to Increase Acceptance Angle of Fresnel- and Prismatic Lenses Concerning Different Photosensitive Areas of Solar Cells (SCs)
V. Borshchov, C. Cancro, Y. Kostyshyn, O. Listratenko, V.D. Rummyantsev, M.Z. Shvarts, A.A. Soluyanov, M. Sturm
- P 57: The ORION Project: Progress Towards the Development of CPV for Rooftop Applications
F. Rasello, M.R. Congia, S. Padovani, S. Sinesi, J.A. Bomfim, D. Pasqualini, G. Rotaris, A. Filipuzzi, M. Antonipieri, G. Georghiou, M. Norton, V. Poulek, F. Romanato, A. Martucci, J. Janusonis, D. Janusonis
- P 59: Structuring Technology and Simulation of High Efficiency Back-Contact Back-Junction Silicon Solar Cells under Low Concentration
R. Woehl, M. Rüdiger, D. Biro, R. Preu
- P 61: Indoor Characterization of MJ Solar Cells under Non-Uniform Light Patterns
R. Herrero, S. Askins, M. Victoria, C. Dominguez, I. Antón, G. Sala, J. Berrios
- P 63: Advanced Processing Techniques for Monolithic Interconnected Modules (MIMs)
H. Helmers, E. Oliva, W. Bronner, F. Dimroth, A.W. Bett
- P 65: Low Absorption Tunnel Junction with a Peak Current Density Exceeding 10000 A/CM² for MJ Concentrator Solar Cells
I. García, I. Rey-Stolle, C. Algora
- P 69: Numerical Simulation of GAINP/ALINP Window Layer for High Concentration Photovoltaic Cells
D.-H. Jun, S.H. Park, Y. Park, C.Z. Kim, H.K. Kang, W.-K. Park, C.G. Ko
- P 71: Monolithic Vertical Multi-Junction Concentrator Cells
A. Kribus, Y. Rosenwaks, G. Segev, R. Pozner, R. Sarfaty
- P 73: Effect of Non-Uniform Light on Solar Cell's Operation and Optimization Scheme of the Front Grid
P. Kotsidas, M. Oztop, V. Modi
- P 75: Advances in Cell Carriers for CPV Applications
O. Arenas, V. Aimez, S. Chow, C. Valdivia, J. Wheeldon, K. Hinzer, A. Turala, R. Arès
- P 77: Design of a Hybrid Jet Impingement Microchannels Cooling Device for Densely Packed PV Cells under High Concentration
J. Barrau, J.I. Rosell, M. Ibañez

1800-2100 Industry Session and Reception

Sponsors and exhibitors will present their most recent product developments. Some 20-30 presentations, 4 minutes each, is foreseen.

This session will be accompanied by a reception including wine, beer and appetizers.

Thursday, 08 April 2010

Congress Centre Concert Hall Freiburg

830-950 Oral Session 3: CPV Market and Costs

Chair: D. Swanson, P. Verlinden

- Proposal of a Spanish CPV Feed-In Tariff
P. Pérez-Higueras, C.E. Muñoz, E. Muñoz, G. Almonacid, P.G. Vidal, P. Banda, I. Luque-Heredia, P. Valera, M. Cabrerizo
- Financing Growth – Observations of Financing Activity in the Global Photovoltaics Industry
T. Christiansen
- **Invited Lecture** (30 + 5 min):
Delivering on the promise of CPV now
V. Garboushian
- Are Solar Structures Akin to Planes, Trains and Automobiles?
S. Kotagiri, T. Skrzek, B. Corcoran

0950-1100 Panel Discussion:

“Short-Term and Long-Term Potential for Cost Reduction of CPV”

Moderator: Frank Dimroth

Participants: *V. Garboushian, Amonix, USA; N. Hartsoch, SolFocus, USA; S. Kotagiri, Cosma, USA; H. Lerchenmüller, Concentrix, Germany; P. Verlinden, Australia*

1100-1130 Coffee Break

Coffee breaks can be enjoyed in the catering areas around the conference room.

1130-1230 Oral Session 4: Reliability and Standards

Chair: I. Anton, G. Siefer

- High Concentration CPV Reliability Progress at Emcore
I. Aeby, D. Aiken, B. Clevenger, F. Newman, P. Patel, T. Varghese, C. Dempsey, J. Foresi
- Reliability Improvement in III-V Concentrator Solar Cells by Means of Perimeter Protection
J.R. González, M. Vázquez, N. Núñez, C. Algora, P. Espinet
- Status of IEC CPV Standards Development
R. McConnell, S. Kurtz, W. Shisler, T. Trowbridge, I. Anton, P. Verlinden, F. Rubio, K. Araki, I. Aeby
- Experiences in IEC 62108 CPV Testing
J. Althaus, B. Shisler

1230-1400 Lunch Break

Lunch will be served in the catering areas around the conference room.

1400-1600 Poster Session 2: Presenters in front of the following posters:

- P 02: Temperature Coefficients of FLATCON® Modules
G. Peharz, J.P. Ferrer-Rodríguez, G. Siefer, A.W. Bett
- P 04: Outdoor Characterization and Performance Evaluation of Integra-Sun Prototype CPV Module
L. Pujol, A. Perona, J.R. Bouriel, E. Landart, A. Dollet
- P 06: A Solar Simulator Design for Concentrating Photovoltaics
H. Rehn

- P 08: Technical and Economic Potential of Solar Linear Concentrators in India
M. Vivar, J. Daniel, I.L. Skryabin, V.A. Everett, A.W. Blakers, L. Suganthi, S. Iniyan
- P 10: Software Modeling of FLATCON® CPV Systems
T. Gerstmaier, S. van Riesen, A. Gombert
- P 12: Design and Development of Cost Effective Concentrator Photovoltaic System
B. Tripath, M. Kumar, S. Sanawada
- P 14: Design of a Combined CPV/TPV System for High Solar Irradiation Areas
A. Mokri, M. Emziane
- P 16: Feasibility Study on High Concentrating Photovoltaic Power Towers
D. Frohberger, M. Wiesenfarth, H. Helmers, A. Heimsath, A.W. Bett
- P 18: Integrated Closed Loop Tracking System for Rooftop Concentrator Modules
R.L. Johnson Jr., J. Bobruk, N. Fromer, D. McDermott
- P 20: Simulation of Deformation Induced Sun Tracking Error in a High Concentrated Photovoltaic System
C.-K. Lin, C.-Y. Lin, J.-C. Wu
- P 22: Tracking Accuracy Assessment for Concentrator Photovoltaic Systems
M.S.H. Norton, B. Anstey, R.W. Bentley, G.E. Georghiou
- P 24: A New Kinematic Schematics for Sun Tracking
S. Mauro, C. Scarzella
- P 26: Inverter Modeling for Accurate Energy Predictions of Tracking HCPV Installations
J.P. Bowman, M. McDonald
- P 28: Evaluation Parameters for CPV Production
F. Rubio, M. Martínez, A. Martín, A. Hipólito, P. Banda
- P 30: Performance of Concentrator Photovoltaic System of 30kW
H. Nagai, K. Araki, T. Yano, Y. Kuroda, T. Hanyuuda
- P 32: Degradation Analysis of High Concentration Photovoltaic Module
Y.-P. Liang, K.-H. Lin, Z.-H. Shih, H.-F. Hong, H.-Y. Shin, C.-T. Kuo
- P 34: Designing CPV Receivers with Reliability: Early Evaluation of Components
M. Vivar, V. Everett, A. Blakers, D. Walter, J. Harvey, R. Van Scheppingen, S. Surve, J. Muric-Nesic
- P 36: Environmental Sustainability of Two CPV Systems: Results from the APOLLON Project
M.J. de Wild-Scholten, M. Sturm, P. Zurru, M. Noack, K. Heasman, G. Timò
- P 38: Spectral Circumsolar Radiation Contribution to CPV
C.A. Gueymard
- P 40: Regression Methodology for Long-Term Solar Irradiance Forecasting Based on the National Weather System Database
C.F.M. Coimbra, R. Marquez
- P 42: Spectral Robustness Study for Mechanically Stacked Multi-Junction Solar Cells
L. Zhao, G. Flamand, J. Poortmans
- P 44: Spectral Solar Radiation Measurements and Models for CPV Module Production Estimation
J. Leloux, D. Pachón, G. Sala
- P 46: Aggregated Total Internal Reflection Optics for Solar
D. Schultz, C. Grimmer, K. Fine, S. Ghosh
- P 48: Optical Design and Tolerance Budgeting for Solar Concentrators
L. Fu, R. Leutz, H.P. Annen
- P 50: Asymmetric Fresnel Lenses in CPV
T.L.R. Davenport
- P 52: Optimization of Flat Fresnel Lens for 500X High Concentration Photovoltaic System
K. Ryu, G.-H. Shin, W. Cha, Y. Kim, J. Lee, G.-H. Kang, D. Kim, H.-I. Cho

- P 54: Concentrator Design of a Fresnel Lens and a Secondary Optical Element
Y.-C. Chen, C.-H. Su
- P 56: A CPV system with Static Linear Fresnel Lenses in a Greenhouse
P. Sonneveld, G.J. Swinkels, B. van Tuil, H. Janssen
- P 58: Enhanced Performance of a PVT Parabolic Low Concentrating Collectors Assembly
A. Reatti, M. Beltramini
- P 60: An Ultra-High Irradiance Solar Furnace for Solar Cell Characterization and Nanomaterial Synthesis
D. Babai, D. Feuermann, J.M. Gordon
- P 62: Progress in High Efficiency III-V Multi-Junction CPV at SPECTROLAB
J.H. Ermer, R.R. King, C. Fetzer, R. Jones, A. Boca, D. Larrabee, X.-Q. Liu, W. Hong, D. Bhusari, P. Hebert, P.-C. Pien, N. Karam
- P 64: InGaP/GaAs Inverted Dual Junction (DJ) Solar Cells for CPV Applications Using Metal Backed Epitaxial Lift Off (MELO)
G.J. Bauhuis, P. Mulder, E.J. Haverkamp, J.J. Schermer, L.J. Nash, D.J.F. Fulgoni, I.M. Ballard, G. Duggan
- P 66: GaAs GaAs, AlGaAs and InGaP Tunnel Junctions for Multi-Junction Solar Cells under Concentration: Resistance Study
J.F. Wheeldon, C.E. Valdivia, A. Walker, G. Kolhatkar, T.J. Hall, K. Hinzer, D. Masson, B. Riel, S. Fafard, A. Jaouad, A. Turala, R. Arès, V. Aimez
- P 68: A Two Dimensional Finite Element Model of Front Surface Current Flow in Cells under Non-Uniform Radiation and Temperature Profiles
D. Chemisana, J.I. Rosell, J.L. Domenech-Garret, F. Badia
- P 70: Effects of High Concentration of Sunlight on Tunneling in Multi-Junction Solar Cells
E.A. Katz, A. Braun, B. Hirsch, J.M. Gordon, W. Guter and A.W. Bett
- P 72: Nanowires for Concentrator Photovoltaics
J. Wallentin, M.T. Borgström, L. Samuelson, K. Deppert
- P 74: New Structure of Solar Receiver in HCPV Module
S.-Y. Tsai, Y.-M. Lee, Z.-H. Shih, Y.-P. Liang, H.-F. Hong, H.-Y. Shin, C.-T. Kuo
- P 76: A Monolithic Microconcentrator PV Receiver for a Hybrid PV/Thermal System: Preliminary Performance
D. Walter, V. Everett, A. Blakers, M. Vivar, J. Harvey, R. Van Scheppingen, S. Surve, J. Muric-Nesic

1530-1600 **Coffee Break**

Coffee breaks can be enjoyed in the catering areas around the conference room.

1600-1730 **Oral Session 5: Concentrator Solar Cells and Receivers**

Chair: R. Jones, G. Strobl

- MOVPE Development of III/V Multi-Junction CPV at Spectrolab
C. Fetzer, W. Hong, X.-Q. Liu, J. Chang, M. Lau, A. Boca, D. Larrabee, R. King, P. Hebert, J. Ermer, A. Parekh
- Towards the Industrialization of Concentrator Solar Cells with Efficiencies above 40%
W. Guter, M. Meusel, W. Köstler, R. Kern, G. Siefer, R. Kellenbenz, F. Dimroth
- Concentrator Solar Cell Production Capability, Reliability Assessment, and Laboratory Results at Emcore
D. Aiken, I. Aeby, B. Clevenger, F. Newman, P. Patel, P. Sharps, M. Stan, T. Varghese, J. Wood

- Infrared Reflective and Transparent Inverted Metamorphic Triple Junction Solar Cells
J. Geisz, J. S. Ward, A. Duda, W. Olavarria, L. Gedvilas, M. Young, M. Wanlass, J. Carapella, S. Kurtz, D. Friedman
- New 3J CPV Cells Incorporating Multi-Quantum Wells
T. Tibbits, D. B. Bushnell, V. Drouot, V. Grant, M. Lumb, A. Johnson, R. Lawrence, M. Geen
- Water Cooled TJ Dense Array Modules for Parabolic Dishes
R. Loeckenhoff, T. Kubera, K.-D. Rasch

1830-2400 **Conference Dinner**

at Fraunhofer Institute for Solar Energy Systems, Heidenhofstr. 2, 79110 Freiburg
1800-1930: Buses leaving every 15 minutes from the main entrance of Congress Centre Concert Hall to Fraunhofer ISE passing the test facility of Fraunhofer ISE; possibility for tours at Fraunhofer ISE. Don't forget to register for the bus!
2000: Dinner starts.
2200-2330: Possibility for tours at Fraunhofer ISE.
2230-2400: Bus shuttle back to the city centre.

Please wear your badge, as there will be a door check to ensure that only participants with conference badges are admitted to the dinner!

Friday, 09 April 2010

Congress Centre Concert Hall Freiburg

0900- 1000 **Oral Session 6: Solar Cell Simulation and Characterization**

Chair: A. Gombert, B. McConnell

- Simulation of Current Spreading in III-V Multi-Junction Solar Cells With Non-Uniform Irradiance
J. M. Olson
- Distributed Simulation of Real Tunnel Junction Effects in Multi-Junction Solar Cells
P. Espinet, I. García, I. Rey-Stolle, C. Algora, M. Baudrit
- Transfer of Power by Photons in HCPV Triple-Junction Cells
V.D. Rumyantsev, N.I. Kozhuchov, D.A. Malevskiy, P.V. Pokrovskiy
- Capacitance Measurements for Subcell Characterization in Multi-Junction Solar Cells
C. M. Ruiz Herrero, I. Rey-Stolle, I. García, E. Barrigón, P. Espinet, C. Algora

1000-1030 **Invited Lecture (20+10 min):**

The Current Status of CSP – an Overview

M. Geyer, Abengoa Solar

1030-1100 **Coffee Break**

Coffee breaks can be enjoyed in the catering areas around the conference room.

1100-1230 **Oral Session 7: Energy Rating and Performance Prediction**

Chair: F. Rubio, D. Aiken

- Considerations for How to Rate CPV
S. Kurtz, M. Muller, B. Marion, R. McConnell, S. Surendran, A. Kimber
- Analysis and Simulation of Performance of CPV Systems with Multi-Junction Solar Cells
P. Verlinden, J. B. Lasich
- What is the Most Appropriate and Practical Index to Represent Spectrum Sensitivity of CPV?
K. Araki

- Energy Harvesting Efficiency of III-V Multi-Junction Concentrator Solar Cells under Realistic Spectral Conditions
S.P. Philipps, G. Peharz, R. Hoheisel, T. Hornung, N.M. Al-Abadi, F. Dimroth, A.W. Bett
- An Investigation into Spectral Parameters as They Impact CPV Module Performance
M. Muller, B. Marion, S.R. Kurtz
- Performance Model Assessment for Multi-Junction Concentrating Photovoltaic Systems
C. Cameron, C. Crawford, J. Foresi, D. King, R. McConnell, D. Riley, A. Sahm, J. Stein

1230-1400 **Lunch Break**

Lunch will be served in the catering areas around the conference room.

1400-1530 **Oral Session 8: Concentrator Optics**

Chair: R. Leutz, P. Nitz

- Mass Manufacturing Challenges for CPV Primary and Secondary Optics
T. Luce, J. Cohen
- Improving the Efficiency/Cost Ratio by Increasing the Tolerance of Your Fresnel System
J. C. Miñano, P. Benítez, A. Cvetkovic, P. Zamora, R. Mohedano, M. Hernández, J. Chaves, O. Dross, R. Álvarez
- Temperature Dependent Measurement and Simulation of Fresnel Lenses for Concentrating Photovoltaics
T. Hornung, A. Bachmaier, P. Nitz, A. Gombert
- Angular Transmission Characterization of CPV Modules Based on CCD Measurements
R. Herrero, S. Askins, M. Victoria, C. Dominguez, I. Antón, G. Sala, J. Berrios
- Optical Characterization of FluidReflex Concentrator
M. Victoria, C. Dominguez, S. Askins, I. Antón, G. Sala
- Benefits of Metal Reflective Surfaces for Concentrating Solar Applications
S. Braendle

1530-1600 **Coffee Break**

Coffee breaks can be enjoyed in the catering areas around the conference room.

1600-1700 **Oral Session 9: Various Topics (Low Concentration, Tracking)**

Chair: V. Garboushian, G. Peharz

- The Whitfield Solar CPV Collector
R. Bentley, B. Anstey, J. Callear, S. Chonavel, I. Clark, I. Collins, H. Scanlon, C. Weatherby
- 19.5% Efficient Screen Printed Crystalline Silicon Metal Wrap Through (MWT) Solar Cells for Concentrator (2-25x) Applications
T. Fellmeth, S. Fritz, M. Menkoe, F. Clement, D. Biro, R. Preu
- Comparison of Sensors for Feedback in Solar Tracking Applications
M. Davis
- Sensorless and Power-Optimized Sun Tracking for CPV Applications Using Dual-Axis Trackers
O. Stalter, B. Burger

1700-1730 **Closing Remarks**

A. Bett, Fraunhofer ISE

1830-2200 **Optional Excursion:
Wine Tasting and Hearty Snack**

(Separate registration fee. Please register at the Info Desk.)

The meeting point for the Wine Tasting Excursion to Winzerkeller Breisach is in front of the Congress Centre Concert Hall