



Conference & Exhibition on
Solutions for Vehicle Integration
The Netherlands | hybrid

Get Online Program



Conference Program

As of Feb 10, 2023

All sessions will take place in room Limousin 3

Wednesday, February 15, 2023

09:00 - 10:00	Opening Session <i>Chair: Bonna Newman, Lightyear Layer</i>
09:00	Welcome and Conference Overview <i>B. Newman, Lightyear Layer</i>
09:10	DG-Move <i>Z. Kregar, DG-Move</i>
09:35	Towards a Businessplan for Vehicle Integrated PV and PV Charging Stations <i>U. Muntwyler, Dr. Schüpbach & Muntwyler GmbH</i>
10:00 - 10:30	Break
10:30 - 12:00	Session 1: Electronics, Fleets, and V2G <i>Chair: Lenneke Slooff-Hoek, TNO</i>
10:30	Model-based Impact Analysis of Vehicle-Integrated Photovoltaics and Vehicle-To-Grid on Electric Vehicle Battery Life <i>A. Kouzelis</i> <i><u>TU Delft / Lightyear</u></i>
10:55	A Case Study of PV-Integrated EVs Applied in a Merchandise Delivery Service in Japan <i>H. Mizuno¹, K. Tanahashi¹, T. Takashima¹, T. Oozeki¹</i> <i><u>¹AIST</u></i>
11:10	The Urban Potential of Vehicle Integrated Photovoltaics: A Global Assessment <i>M. Brito¹, R. Amaro e Silva², D. Pera³.</i> <i>Presented by D. Pera³</i> <i><u>¹University of Lisbon; ²MINES ParisTech, PSL Research University, France; ³Luxembourg Institute of Science and Technology (LIST)</u></i>

- 11:25 **A Procedure for Equivalent Circuit Model Identification of 3D Shaped Photovoltaic Module**
A. Guarino¹, A. Elnosh¹, C. Hornschuch¹
¹Sono Motors GmbH
- 11:40 **Optimized Cell Interconnection and Cell Topology for Manufacturable Curved VIPV Components**
A. Binani¹, B. Newman¹, A. Carr¹, O. Apaydin¹
¹TNO
- 12:00 - 13:30 Lunch
- 13:30 - 14:30 **Session 2: Panel Discussion – PV on Passenger Vehicles**
- Why is now the time for a solar EV?**
A discussion about the pros and cons of solar EVs for personal transport, the situation in the industry, and if solar EVs could make a significant contribution to the energy transition.
Chair: Urs Muntwyler, Dr. Schüpbach & Muntwyler GmbH
Panelists: M. Heinrich (Fraunhofer ISE); L. Tous (AGC); E. Cornagliotti (Lightyear); R. Kogler (Webasto Roof&Components)
- 14:30 - 16:00 **Session 3: Vehicle Integration and Systems**
Chair: Martin Heinrich, Fraunhofer ISE
- 14:30 **High-Voltage Vehicle Integrated Photovoltaics System Concept and First Results Under Operation of a Demonstrator**
M.A. Schüler
Fraunhofer ISE
- 14:55 **Impact of Additional PV Weight on the Energy Balance of Electric Passenger Cars with VIPV**
N. Patel¹, K. Bittkau¹, B. Pieters¹, E. Sovetkin¹, A. Reinders², K. Ding¹
¹Forschungszentrum Jülich; ²Eindhoven University of Technology
- 15: 10 **Mobile Application to Estimate Solar Irradiance in Urban Environments**
R. Nuñez¹, A. Monteagudo², J. Macias¹, R. Herrero¹, I. Anton¹
¹Instituto de Energía Solar, Universidad Politécnica de Madrid; ²Escuela Técnica Superior de Ingeniería y Diseño Industrial, Universidad Politécnica de Madrid
- 15:25 **PV2Go: Evaluation of a Citizen Science Campaign for Measuring Solar Potential on Car Roofs**
A. Kleinhans¹, C. Braun¹, F. Haider¹, C. Schill¹
¹Fraunhofer Institute for Solar Energy Systems ISE
- 16:00 - 16:30 Break

16:30 - 18:00

Session 4: Characterization, Evaluation, Safety, and Reliability

Chair: Kenji Araki, University of Miyazaki

16:30

Characterization of Curved Modules in a Collimated Solar Simulator, Comparison with Outdoor Results

I. Antón¹, R. Herrero¹, F. Martín², S. Askins¹, J. Macías¹, G. Vallerotto¹, R. Núñez¹, C. Domínguez¹

¹Instituto de Energía Solar - Universidad Politécnica de Madrid; ²Solar Added Value

16:55

Stress Tolerance of Novel, Lightweight, Curved PV Modules for Vehicle Integration

S. Prabhudesai¹, K. Nicolet¹, G. Cattaneo¹, L. Jaques¹, J. Levrat¹, F. Mujovi¹, J. Robin², V. Leite², J. Silva³, M. Despeisse¹, A. Faes¹

Presented by Fahradin Mujovi

¹CSEM SA; ²Simoldes Plastics; ³CEiiA

17:10

Shading Losses Measurements for Integrated Photovoltaics Potential Estimation for Solar City Bus, and Data Driven Simulations

F. Karoui¹, S. Nassibi², B. Chambion¹, F. Claudon¹, B. Commault¹

Presented by Bertrand Chambion

¹CEA LITEN University Grenoble Alpes; ²Univ. Grenoble Alpes, CEA, Liten

17:25

How to Navigate the ViPV Solar Supply Chain

J. Althaus

Clean Energy Associates, LLC

17:40

Proposed Method for Evaluation of ViPV Systems

A. Carr¹, B. Newman¹

Presented by Lenneke Slooff¹

¹TNO

Thursday, February 16, 2023

09:00 - 10:30 **Session 5: Industry Session - Future of Transportation**

Chair: Harry Wirth, Fraunhofer ISE

09:00

Toyota

T. Masuda, Toyota Motor Corporation

09:20

Merlin Solar

M. Venkatesan, Merlin Solar

09:40

Trina

X. Gao, trinasolar

10:00

Hyundai

B. Lee, Hyundai

10:30 - 11:00

Break

11:00 - 12:30

Session 6: Government and Policy for Solar Mobility

Chair: Joe Simon, NREL

11:00

VIPV in Japan

M. Yamazaki, NEDO

11:20

VIPV in the Netherlands

O. Bernsen, RVO/PVPS

11:40

VIPV as part of the EU Solar Energy Strategy

T. Garabetian, SPE

12:00

Challenges and Opportunities for VIPV: A Perspective from the U.S. Dept. of Energy

J. DiStefano¹, M. Beck¹, G. Stefopoulos¹

¹Boston Government Services

12:30 - 14:00

Lunch

14:00 - 15:30

Session 7: Modelling Performance and Impact

Chair: Ignacio Anton, Instituto de Energía Solar, Universidad Politécnica de Madrid

14:00

I-V Curve Simulation of Curved PV Modules for Vehicle Integration under Various Irradiation Conditions

F. Mujovi¹, J. Levrat¹, A. Faes¹, P. Duvoisin¹, S. Prabhudesai¹, G. Cattaneo¹, L. Jaques¹, M. Despeisse¹, C. Ballif¹, G. Arnoux², N. Bassi¹, R. Ambigapathy¹

¹CSEM SA; ²PASAN SA

14:25

Estimation of the Energy Yield of VIPV Affected by its Specific Solar Environment

Y. Ota¹, K. Araki¹, Y. Kawakami¹, S. Kuranaga¹, K. Hirata¹, K. Nakamura¹, K. Nishioka¹

¹University of Miyazaki

- 14:40 **Expected Reduction of CO2 Emission and Charging Frequency by PV-Powered Passenger Vehicle**
K. Komoto¹, T. Hirota²
¹*Mizuho Research & Technologies, Ltd.*; ²*Waseda University*
- 14:55 **GIS-based Solar Irradiance Simulation for VIPV Applications in a Complex Urban Environment**
D. Pera¹, C. Braun¹, P. Pinheiro¹, U. Leopold¹
¹*Luxembourg Institute of Science and Technology*
- 15:10 **Improving VIPV Irradiance Modelling**
E. Sovetkin¹, A. Gerber¹, N. Patel¹, B. Pieters¹
¹*Forschungszentrum Jülich GmbH*
- 15:30 - 16:00 Break
- 16:00 - 17:15 **Session 8: Panel Discussion – Trucks – Who benefits?**
PV on trucks could have a large impact on climate change and change the way goods are delivered. In this session, we will discuss the opportunities on diesel and electric trucks, different types of delivery vehicles, integrated vs. applied PV for trucks, and who gets the most value?
Chair: Bonna Newman, Lightyear Layer
Panelists:
R. Derks (IMEfficiency), R. Händel (OPES Solutions), T. Kaiser (P2CR), M. Shalaby (Sono Motors)
- 17:15 - 18:45 **Session 9: Materials and Manufacturing**
Chair: Loic Tous, AGC
- 17:15 **3D Lamination Process for the Manufacturing of 3D Shaped VIPV Modules**
S. Neven-du Mont¹, M. Heinrich¹
¹*Fraunhofer ISE*
- 17:40 **Perovskite Tandem PV for Mobility**
T. Leijtens
¹*Swift Solar Inc*
- 17:55 **Back-Contact Solar Technology – CBS will take you a Long Way**
L. Theunissen¹, P. Pasmans¹, H. Schoot¹
Presented by P. Pasmans¹
¹*Endurans(tm) Solar*
- 18:10 **Manufacturing High-Yield, Low-Cost, Lightweight VIPV Components**
L.A.G. Oke¹, N. Guillevin¹, E. Hoek¹, O. Apaydin¹, V. Rosca¹, B.K. Newman¹
¹*TNO*

18:25

**Fully Fiber Reinforced Lightweight PV Modules towards
Vehicle-integrated Photovoltaics (VIPV) Applications**

*B. Luo¹, J. Govaerts¹, M. Casasola Paesa², T. Borgers¹,
R. Van Dyck¹, L. Tous¹, H. Sivaramakrishnan Radhakrishnan¹,
A.W. Van Vuure³, J. Poortmans¹*

¹ imec; ² UHasselt; ³ KU Leuven

18:45 - 19:00

Sponsors Presentations

Chair: Arthur Weeber, TNO

18:45

AGC Glass

L. Tous, AGC Glass Europe

19:00

Conference Dinner

Room: Galloway

Friday, February 17, 2023

- 09:00 - 10:30** **Session 10: Performance in Realistic Environments**
Chair: Keiichi Komoto, Mizuho Research & Technologies
- 09:00 **On the Energy Generation in VIPV: Case Study Under Partial Shading Conditions**
J. Macías¹, R. Herrero¹, R. Núñez¹, I. Antón¹
¹Instituto de Energía Solar - Universidad Politécnica de Madrid
- 09:25 **Should We Park the Solar Car in the Shade?**
G. Gaspar¹, I. Costa¹, M. Brito¹
¹Instituto Dom Luiz
- 09:40 **Performance Optimization of Solar-Powered Vehicles under Dynamic Partial Shading Conditions**
K. Awan¹, M. Elgendy¹, D. Huo¹, K. Adhikari¹, H. Hasanien²
¹Newcastle University; ²Ain Shams University
- 09:55 **Impact of the Partial Shading Distribution on the output of the Vehicle-Integrated Photovoltaic Module**
Y. Ota¹, K. Araki¹, K. Nishioka¹
¹University of Miyazaki
- 10:10 **Impact of Climate Conditions on Driving Distance of PV-powered Vehicles**
M. Yamaguchi¹, T. Masuda², T. Tanimoto³, K. Araki⁴
¹Toyota Technological Institute; ²Toyota Motor Corporation; ³Nissan Motor Corporation;
⁴University of Miyazaki
- 10:30 - 11:00** Break
- 11:00 - 12:00** **Closing Session**
Chair: Bonna Newman, Lightyear Layer
- Summary and Highlights**
- Online Presentation Conference Chair 2024**
- 12:00 - 13:30** Farewell Lunch



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