

The 9th IRP NextPV International Workshop Program

Venue: Originally at IPVF and C2N, goes online! Video conferencing software will be Cisco Webex Teams.

Date: 24th-27th November 2020

Program overview:

	<u>NextPV workshop</u>			<u>NextPV LIMMS joint event</u>
	Tue. 24 th	Wed. 25 th	Thu. 26 th	Fri. 27 th
FR 8:00-9:20am JP 4:00-5:20pm	Welcome address	Systems and modules (2 presenters)	III-V and advanced concepts 2 (3 presenters)	Introduction
Perovskite 1 (3 presenters)	Characterization			
		Poster flashtalks 1		Session 1 (3 presenters)
<i>20 min break</i>				
FR 9:40-11:00am JP 5:40-7:00pm	Perovskite 2 (2 presenters)	Poster session 1 (40min)	Poster session 2 (40min)	Session 2 (4 presenters)
	Quantum dots and organic (2 presenters)	III-V and advanced concepts 1 (2 presenters)	Solar to hydrogen	
			Concluding remarks	
<i>10 min break</i>				
FR 11:10-12:10am JP 7:10-8:10pm	1h board meeting	Online social event to be defined		LIMMS Beaujolais Party!

Format:

Presentation format: 15 min + 5 minutes questions

Poster format: 2 min flashtalks with 1 slide per poster, followed by 40 min poster sessions.

Detailed program

Tuesday, 24th November 2020

8:00^{FR} / 4:00^{JP} Welcome addresses

Perovskite Session 1

8:20^{FR} / 4:20^{JP} Ludmila Cojoraru, ISM
Integration of perovskite solar cells with supercapacitors for energy conversion-storage devices

8:40^{FR} / 4:40^{JP} Takeru Bessho, Segawa Laboratory
Present status of perovskites solar cells

9:00^{FR} / 5:00^{JP} Eric Cloutet and Thierry Toupance, LCPO and ISM
Study of Ionic liquid type molecules and macromolecules for Perovskite solar cells

9:20^{FR} / 5:20^{JP} 20 min break

Perovskite Session 2

9:40^{FR} / 5:40^{JP} Philip Schulz, IPVF
Interfaces and Stability of Halide Perovskite Semiconductors

10:00^{FR} / 6:00^{JP} Samy Almosni, Saule technology
Perovskite modules for IoT applications – a promising market entry point

Organic and quantum dots

10:20^{FR} / 6:20^{JP} Takaya Kubo, Segawa Laboratory
Solution processed quantum dot solar cells

10:40^{FR} / 6:40^{JP} Robin Szymanski, IMS
Design of novel ternary blend for industry relevant polymer solar cell

11:00^{FR} / 7:00^{JP} 10 min break

11:10^{FR} / 7:10^{JP} Board Meeting

Wednesday, 25th November 2020

Systems and modules

- 8:00^{FR} / 4:00^{JP} Margot Gaétani-Lisseo, LAAS
Microgrids
- 8:20^{FR} / 4:20^{JP} Maxime Darnon, LN2
Concentrated photovoltaics: from materials to system
- 8:40^{FR} / 4:40^{JP} Muriel Bouttemy, ILV
Advanced chemical characterization of photovoltaic materials and modules: from fundamentals to application

Poster session 1

- 9:00^{FR} / 5:00^{JP} Poster Flashtalks
2 min flashtalks for 10 posters
- 9:20^{FR} / 5:20^{JP} *20 min break*
- 9:40^{FR} / 5:40^{JP} Poster session
40 minutes

III-V materials and advanced concepts 1

- 10:20^{FR} / 6:20^{JP} Kentaroh Watanabe, Sugiyama Laboratory
III-V based PV R&D program in Japan: High-efficiency and low-cost PV module loaded on the mobile object
- 10:40^{FR} / 6:40^{JP} Maxime Levillayer, LAAS
Development of InGaAsN subcells and degradation study under irradiation
- 11:00^{FR} / 7:00^{JP} Social event to be defined

Thursday, 26th November 2020

III-V materials and advanced concepts 2

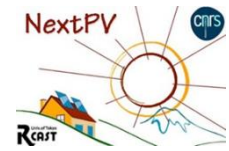
- 8:00^{FR} / 4:00^{JP} Ryo Tamaki, Okada Laboratory
Reciprocity relation in InAs quantum dot solar cells via absolute luminescence spectroscopy
- 8:20^{FR} / 4:20^{JP} Nicolas Cavassilas, IM2NP
Balancing of quantum-dots intermediate band solar cells with a tunnel barrier



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8:40^{FR} / 4:40^{JP} Sodabanlu Hassanet
High-speed III-V MOVPE growth for solar cells

Poster session 2

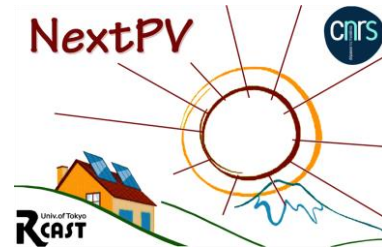
9:00^{FR} / 5:00^{JP} Poster Flashtalks
2 min flashtalks for 10 posters

9:20^{FR} / 5:20^{JP} *20 min break*

9:40^{FR} / 5:40^{JP} Poster session
40 minutes

10:20^{FR} / 6:20^{JP} Masakazu Sugiyama
Title TBD (Solar hydrogen project)

10:40^{FR} / 6:40^{JP} Concluding remarks

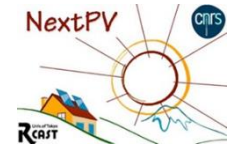


NextPV LIMMS joint event

Venue: Online only. The video conferencing software will be Cisco or Zoom. An access link will be provided ahead of the event.

Friday, 27th November 2020

- 8:00^{FR} / 4:00^{JP} *Introduction*
- 8:20^{FR} / 4:20^{JP} Masahiro Nomura, LIMMS, IIS
Thermal energy transfer by surface phonon polaritons in SiN nanofilm
- 8:40^{FR} / 4:40^{JP} Maxime Giteau, NextPV, Okada Laboratory
Understanding the cooling mechanisms of hot carriers in ultrathin GaAs layers
- 9:00^{FR} / 5:00^{JP} Marc Bescond, LIMMS, CNRS
High performance thermionic cooling devices based on tilted-barrier semiconductor heterostructures
- 9:20^{FR} / 5:20^{JP} Sylvain Chambon, NextPV & LIMMS, IIS
WATER-PV: an ANR project between LIMMS and NextPV
- 9:30^{FR} / 5:30^{JP} *10 min break*
- 9:40^{FR} / 5:40^{JP} Hiroshi Toshiyoshi, LIMMS, IIS
How do we define the efficiency of MEMS vibrational energy harvester?
- 10:00^{FR} / 6:00^{JP} Cedric Ayela, NextPV, IMS
Engineering polymer MEMS for Mechanical energy harvesting
- 10:20^{FR} / 6:20^{JP} Anthony Genot, LIMMS, CNRS
Mapping the crystallization diagram of AuNP super lattices
- 10:40^{FR} / 6:40^{JP} *Concluding remarks and LIMMS Beaujolais Party!*



Poster sessions

Poster session 1, Wednesday November 25th, 9:40^{FR} / 5:40^{JP}

Eco-friendly AgBiS ₂ Nanocrystal / ZnO Nanowire Heterojunction Solar Cells with Enhanced Carrier Collection	<u>Y. Xiao</u> , H. Wang, T. Kubo, H. Segawa
Improvement of PV characterization for perovskite solar devices	<u>H. Tobita</u> , K. Tada, F. Awai, T. Bessho, S. Uchida, H. Segawa
Perovskite/CIGS spectral splitting double junction solar cell with 28% power conversion efficiency	<u>M. Nakamura</u> , K. Tada, T. Kinoshita, T. Bessho, C. Nishiyama, I. Takenaka, Y. Kimoto, Y. Higashino, H. Sugimoto, H. Segawa
Synthesis of rutile phase TiO ₂ nano particle and its application to perovskite solar cells	<u>M. Furue</u> , T. Bessho, F. Awai, K. Tada, H. Wang, H. Segawa
A Facile Ionic Compound Modification Of Tin Oxide Electron Transport Material To Enhance The Properties of Perovskite Solar Cell	<u>C. C. Lin</u> , T. N. Murakami, M. Chikamatsu, T. Bessho and H. Segawa
Surface Modification of Mixed Halide Perovskite Solar Cells: Application of Carbon-Based Additives	<u>Claire Bapaume</u> (IPVF)
Impact of Carbon Nanotube Growth on the Interfacial Composition and Energetics of Hybrid Organic Metal Halide Perovskites	<u>Javid Hajhemati</u> (IPVF)
Novel Combined Deposition Method of Sputtering and Evaporation for CuGaS ₂ Thin Films	<u>M. Kim</u> , N. Ahsan, T. Logu, N. Miura, A. Gupta, Z. Jehl, Y. Okada
Effects of Swift Heavy Ion Irradiation on CuInS ₂ thin films and its Solar Cells	<u>T. Logu</u> , N. Ahsan, S. Kalainathan, M. Kim, K. Sethuraman, K. Asokan, Y. Okada.
Study of Te Doped CuGaS ₂ Thin Films Deposited for Solar Cell Application	<u>N. Ahsan</u> , R. F. J. Qiu, T. Logu, Vijayan, S. Kalainathan, Y. Okada

Poster session 2, Thursday November 26th, 9:40^{FR} / 5:40^{JP}

Luminescence Characterization of III-V cells	<u>Hao Xu</u> (Sugiyama laboratory)
Wire-on-well structure for good carrier collection and reduced voltage loss	<u>Meita Asami</u> (Sugiyama laboratory)

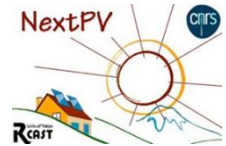


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Z-scheme based on Van der Waals heterojunction for hydrogen production	<u>Paul Dalla Valle</u> (IM2NP)
Graphene transfer for remote epitaxy substrate fabrication	<u>Amaury Delamarre</u> (C2N)
TBD (Systems topic)	<u>Edgar Sepulveda</u> (LAAS)
Influence of shape, size and chemical passivation on the perimeter recombination in GaAs and dilute nitride GaAs solar cells	<u>Moana Desbordes</u> (LAAS)
TBD (Solar Park)	<u>Maxime Darnon</u> (LN2)