



PV Committee China TC Chapter
PV Materials Committee China TC Chapter
Joint Meeting Summary and Minutes

China Fall Standards Meeting 2023
November 16th, 2023, 09:00-18:00
Quzhou, Zhejiang

TC Chapter Announcements

Next TC Chapter Meeting

TBD, China, 2024

Table 1 Meeting Attendees

Italics indicate virtual participants

Co-Chairs: Dengyuan Song (DASOLAR)

SEMI Staff: Cassie Li, Ein Wu

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
DASOLAR	Song	Dengyuan	LINTON	Li	Zhixin
DASOLAR	Xu	Xingxing	LINTON	Liu	Erfei
DASOLAR	Huang	Chenru	Sinosico	Yan	Dazhou
<i>CSI</i>	<i>Zhang</i>	<i>Guangchun</i>	Shenzhen SC	Li	Shijun
CSI	Guo	Suqin	Shenzhen SC	Li	Xuewen
CSI	Lv	Ruirui	RUNERGY	Chen	Rulong
NAURA	Li	Buzhong	Leadmicro	Li	Weiming
NAURA	Sun	Pengtao	Leadmicro	Liao	Baochen
NAURA	Tian	Tao	Red Solar	Cai	Xianwu
NAURA	Han	Tianqi	Red Solar	Long	Hui
NAURA	Jiao	Yujia	Red Solar	Liu	Quanliang
NAURA	Yan	Zhishun	JA Solar	Niu	Xinwei
Trinasolar	Zhou	Wei	AikoSolar	Fukui	Kenji
Trinasolar	Zhou	Yujia	AikoSolar	Wang	Yunfei
Trinasolar	Sun	Yu	<i>ZhongHuan</i>	<i>Zhang</i>	<i>Xuenan</i>
Yingli	Yu	Bo	<i>YONGXIANG</i>	<i>Liu</i>	<i>Yifeng</i>
Yingli	Wang	Xiuxiang	YONGXIANG	Niu	Yuhui
Yingli	Liu	Ying	YONGXIANG	Wang	Tianyou
Yingli	<i>Li</i>	<i>Yingye</i>	Longi	Wang	Yichun
JNU	Mai	Yaohua	Longi	Zhou	Kunchao
JNU	Wu	Shaohang	Longi	Liu	Ying
SHJU	Zhang	Zhen	Longi	Huang	Yanmei
MDEP	Lv	Jinbiao	Chint Solar	Lin	Sainv



CPVT	Huang	Wenhao	Chint Solar	Zhang	Yue
CPVT	Lu	Jiayan	Jolywood	Ni	Jianxiong
Rutech	Chen	Jianjun	Jolywood	Fan	Hao
Rutech	Xu	Fan	Jolywood	Zhang	Man
Sunchine	Wang	Tong	Talesun	Huang	Changqing
SUNTECH	Yan	Tingting	Talesun	Qian	Hongqiang
SUNTECH	Chen	Liping	LDK Solar	Luo	Hongzhi
Risen Energy	Hu	Yuting	LDK Solar	Li	Jianmin
TUV SUD	Wu	Yaozhong	GSolar	Lei	Shuting
SNPDRI	Bai	Yan	GSolar	He	Linjing
Huasun Solar	Chen	Jingwei	Semilab	Chen	Anmin
Harog	Zhang	Li	JINMAO	Fang	Zhenlei
Harog	Fei	Yong	NICE	Zhong	Dalong
Darbond	Yang	Heng	Ideal Deposition	Xi	Ming
Manz	Huang	Yi	HNCERI	Wang	Lichuang
HCVAC	Li	Zhifang	Valiant	Li	Yanhong
HCVAC	Wang	Yao	Euchner	Sun	Shunhong
Naifei Micro	Chu	Maoming	OPTORUN	Ding	Jingxin
Naifei Micro	Wu	Zhiwei	Chunhuo Opto	Jia	Yikuan
Superald	Liang	Liyuan			

Table 2 Leadership Changes

<i>WG/TF/SC/TC Name</i>	<i>Previous Leader</i>	<i>New Leader</i>
<i>PV</i>		
PV BIPV TF	Dengyuan Song – DASOLAR Jingbin Zhu – H2Lab Chengjun ZHOU – ChintSolar Jian Ding – Hanergy Xiuxiang WANG – YINGLI	Zhenlei Fang – Jinmao Green Building Jingbin Zhu – H2Lab Chengjun ZHOU – CHINT Jian Ding – Hanergy Xiuxiang WANG – YINGLI
Crystalline Silicon Solar Cell Task Force	Dengyuan Song – DASOLAR Rulong Chen – RUNERGY Xianwu Cai – CETC 48 Xiuxiang Wang – YINGLI	Rulong Chen – RUNERGY Xianwu Cai – CETC 48 Xiuxiang Wang – YINGLI
Perovskite Thin Film PV Materials and Modules Task Force		Yaohua Mai – JNU Hairen Tan – Renshinesolar
<i>PV Material</i>		
None		

Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
<i>Photovoltaic</i>	
	Perovskite Thin Film PV Materials and Modules Task Force



Table 3 Committee Structure Changes

<i>Previous WG/TF/SC Name</i>	<i>New WG/TF/SC Name or Status Change</i>
<i>Photovoltaic Materials</i>	
None	

Table 4 Ballot Results

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
<i>PV</i>		
7047	Reapproval of SEMI PV82-0318, Specification for Terrestrial Dual-Glass Module with Crystalline Silicon Solar Cell	Passed
7048	Reapproval of SEMI PV83-0318, Guide for Sample Preparation Method for Photovoltaic Backsheet Performance Tests	Passed
7049	Reapproval of SEMI PV85-1018, Practice for Metal Wrap Through (MWT) Back Contact Photovoltaic (PV) Module Assembly	Passed
7050	Reapproval of SEMI PV87-1018, Test Method for Peeling Force Between Electrode and Ribbon/Back Sheet	Passed
7054	Reapproval of SEMI PV 81-0318, Guide for Specifying Low Pressure Horizontal Diffusion Furnace	Failed
<i>PV Materials</i>		
7051	Reapproval of SEMI PV88-1018, Test Method for Determination of Hydrogen in Photovoltaic (PV) Polysilicon by Inert Gas Fusion Infrared Absorption Method	Passed

#1 **Passed** ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

#2 **Failed** ballots and line items were returned to the originating task forces for re-work and re-balloting or abandoning.

Table 5 Activities Approved by the GCS between meetings of the TC Chapter

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>Photovoltaic</i>			
None			
<i>Photovoltaic Materials</i>			
None			

Table 6 Authorized Activities

Listing of all revised or new SNARF(s) approved by the Originating TC Chapter.

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
<i>PV</i>			
7164	SNARF	Perovskite Thin Film PV Materials and Modules Task Force	New Standard: Specification of Terrestrial Perovskite Photovoltaic (PV) Module Sizes
7165	SNARF	Perovskite Thin Film PV Materials and Modules Task Force	New Standard: Specification of FAI for Perovskite Photovoltaic (PV) Industry
7166	SNARF	Crystalline Silicon Solar	Revision to SEMI PV79-0818, Test Method for Exposure Durability of Photovoltaic (PV) Cells to Acetic Acid Vapor



Table 6 Authorized Activities

Listing of all revised or new SNARF(s) approved by the Originating TC Chapter.

#	Type	SC/TF/WG	Details
		Cell Task Force	
<i>PV Materials</i>			
None			

#1 SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 7 Authorized Ballots

#	When	TF	Details
<i>PV</i>			
7055	Cycle 1-24	PV Equipment Task Force	New Standard: Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production
<i>PV Materials</i>			
None			

Table 8 SNARF(s) Granted a One-Year Extension

#	TF	Title	Expiration Date
<i>Photovoltaic</i>			
None			
<i>Photovoltaic Materials</i>			
None			

Table 9 SNARF(s) Abolished

#	TF	Title
<i>PV</i>		
None		
<i>PV Materials</i>		
None		

Table 10 Standard(s) to receive Inactive Status

Standard Designation	Title
<i>Photovoltaic</i>	
None	
<i>Photovoltaic Materials</i>	
None	



Table 11 Table 10 Standard(s) to receive Withdrawal Status

<i>Standard Designation</i>	<i>Title</i>
<i>PV</i>	
None	
<i>PV Materials</i>	
None	

Table 12 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
	Red Solar	Specification of High-temperature Horizontal Furnace Tool for Crystalline Silicon Cells

Table 13 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
None		

1 Welcome, Reminders, and Introductions

Committee co-chair Dengyuan Song called the meeting to order at 09:30.

2 Review of Previous Meeting Minutes

The TC Chapter reviewed the minutes of the previous meeting.

Motion: To approve the minutes of the previous meeting as written

By / 2nd: Zhixin Li (Linton)/ Rulong Chen (Runergy)

Discussion: None

Vote: 29Y - 0 N. Total 29 companies. Motion Passed.

Attachment: 3 China PV&PVM TC Joint Spring Meeting Minutes 20230413-v1

3 Liaison Reports

None

4 SEMI Staff Report

Cassie Li (SEMI) gave the SEMI Staff Report. Of note:

Action Item:

- Standards Technical Committees
- 2023 Critical Dates for SEMI Standards Ballots
- 2024 Critical Dates for SEMI Standards Ballots
- SEMI Standards Publications
- 5 Year Review List
- A&R SC Membership



- Organization chart for China PV Committee
- Organization chart for China PVM Committee
- China PV&PV Materials TC Update

Attachment: 4 SEMI Staff Report2023.11.16

4.1 Other SDO (Standards Development Organization) Update

- None

5 Ballot Review

NOTE 1: TC Chapter adjudication on ballots reviewed is detailed in the Audits & Review (A&R) Subcommittee Forms for procedural review. The A&R forms are available as attachments to these minutes. The attachment number for each balloted document is provided under each ballot review section below.

5.1 Document 7047, Reapproval of SEMI PV82-0318, Specification for Terrestrial Dual-Glass Module with Crystalline Silicon Solar Cell

Motion: Yu Sun(Trina Solar) moved that This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.

By / 2nd: Yu Sun(Trina Solar)/Dazhou Yan (SINOSICO)

Discussion: None

Vote: 33 in favor and 0 opposed. (Total 33 companies. 0 companies abstain.) Motion passed.

Attachment: A&R 7047

5.2 Document 7048, Reapproval of SEMI PV83-0318, Guide for Sample Preparation Method for Photovoltaic Backsheet Performance Tests

Motion: Bo Yu (Yingli) moved that This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.

By / 2nd: Bo Yu (Yingli)/Zhixin Li (Linton)

Discussion: None

Vote: 33 in favor and 0 opposed. (Total 33 companies. 0 companies abstain.) Motion passed.

Attachment: A&R 7048

5.3 Document 7049, Reapproval of SEMI PV85-1018, Practice for Metal Wrap Through (MWT) Back Contact Photovoltaic (PV) Module Assembly

Motion: Zhen Zhang (SHJD) moved that This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.

By / 2nd: Zhen Zhang (SHJD)/Weiming Li (Leadmicro)

Discussion: None

Vote: 33 in favor and 0 opposed. (Total 33 companies. 0 companies abstain.) Motion passed.

Attachment: A&R 7049

5.4 Document 7050, Reapproval of SEMI PV87-1018, Test Method for Peeling Force Between Electrode and Ribbon/Back Sheet

Motion: Hongqiang Qian (Talesun) moved that This Document passed TC Chapter review as balloted and will be



forwarded to the ISC A&R SC for procedural review.

By / 2nd: Hongqiang Qian (Talesun)/Rolong Chen (Runergy)

Discussion: None

Vote: 33 in favor and 0 opposed. (Total 33 companies. 0 companies abstain.) Motion passed.

Attachment: A&R 7050

5.5 Document 7051, Reapproval of SEMI PV88-1018, Test Method for Determination of Hydrogen in Photovoltaic (PV) Polysilicon by Inert Gas Fusion Infrared Absorption Method

Motion: Jiayan Lu (CPVT) moved that This Document passed TC Chapter review as balloted and will be forwarded to the ISC A&R SC for procedural review.

By / 2nd: Jiayan Lu (CPVT)/Rulong Chen (Runergy)

Discussion: None

Vote: 33 in favor and 0 opposed. (Total 33 companies. 0 companies abstain.) Motion passed.

Attachment: A&R 7051

6 Subcommittee and Task Force Reports

6.1 PV Silicon Raw Materials Task Force

None

7 SNARF Abolished

None

8 Task Force Report

8.1 Crystalline Silicon Solar Cell Task Force

Rulong CHEN (Runergy) reported for the Crystalline Silicon Solar Cell Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards.
- Working on
 - 7050: **Reapproval of SEMI PV87-1018, Test Method for Peeling Force Between Electrode and Ribbon/Back Sheet** (电极与焊带以及电极与背板之间剥离力的测试方法)
 - SNARF: **Revision to SEMI PV79-0818, Test Method for Exposure Durability of Photovoltaic (PV) Cells to Acetic Acid Vapor**

Attachment: 5 2023 年秋季会议-电池工作组汇报 20231116

8.2 Building Integrated Photovoltaic (BIPV) Task Force

Xiuxiang WANG (YINGLI) reported for the Building Integrated Photovoltaic (BIPV) Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards

Attachment: 6 2023 年秋季会议-BIPV 工作组汇报(1)

8.3 PV Module Task Force

Wei ZHOU (TrinaSolar) reported for the PV Module Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc 7048, Reapproval of SEMI PV83-0318, Guide for Sample Preparation Method for Photovoltaic Backsheet Performance Tests
 - Doc 7047, Reapproval of SEMI PV82-0318, Specification for Terrestrial Dual-Glass Module with Crystalline Silicon Solar Cell
 - Doc 7049, Reapproval of SEMI PV85-1018, Practice for Metal Wrap Through (MWT) Back Contact Photovoltaic (PV) Module Assembly

Attachment: 7 SEMI PV Module TF Report 2023-11-16

8.4 PV Equipment Task Force

Buzhong Li (NAURA) reported for the PV Equipment Task Force. This report contained information on:

Action Item:

- Introduced the task force's leaders and members
- Introduced published standards
- Working on
 - Doc 7055, Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production
 - Doc 7054, Reapproval of SEMI PV81 0318 — Guide for Specifying Low Pressure Horizontal Diffusion Furnace

Attachment: 8 SEMI 中国光伏标委会设备工作组工作汇报(2023 秋季会议) (密级：不涉密)

9 Old Business

9.1 Refer to Table 12 Previous Meeting Action Items



10 New Business

10.1 New Task Force

-- Perovskite Thin Film PV Materials and Modules Task Force

Motion: Approve the new task Force
By / 2nd: Yaohua Mai(JNU)/ Zhixin Li(Linton)
Discussion: Zhen Zhang (SHJD): Is this Task Force mainly including single-layer or stacked?
Yaohua Mai(JNU):Single layer.
Zhixin Li(Linton): We apply to join, it is best to change the name to Materials and Modules.
Vote: 33 in favor and 0 opposed (Total 33 companies.) Motion passed.

Attachment: 9 Perovskite PV Modules Task Force 2023-11- 16

10.2 Requests for ballots in Cycle 1 of 2024

10.1.1 Doc.7055, New Standard: Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production

Motion: Approve Document 7055 for Letter Ballot in Cycle 1-24.
By / 2nd: Buzhong LI (NAURA) / Shijun Li (Shenzhen SC)
Discussion: Weiming LI (Leadmiro): Is material purity currently defined?
Zhishun Yan(Naura): Yes. The purity is required.
Dazhou Yan(SINOSICO): It is recommended to list every parameters that affects strength.
Vote: 33 in favor and 0 opposed. (Total 33 companies.) Motion passed.
Attachment: 19 SEMI Doc draft 7055 - Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production V2 (密级：不涉密)20231115V2

10.3 New SNARFs

10.3.1 SNARF, New Standard: Specification of Terrestrial Perovskite Photovoltaic (PV) Module Sizes

Motion: Approve the SNARF.
By / 2nd: Shaohang Wu (JNU) / Rulong Chen (Runergy)
Discussion: Weiming Li(Leadmicro): Is this specification standard too early for the entire industry?
Yaohua Mai (JNU): I have been considering this issue for a long time. There has not been a good standard for so many years. It is necessary for the entire industry.
Rulong Chen (Runergy): Is there any preliminary research and how long will it probably last?
Shaohang Wu(JNU): For about 3 years.
Vote: 31 in favor and 0 opposed,2 abstain. (Total 33 companies.) Motion passed.
Attachment: 20 SNARF_Specification of Terrestrial Perovskite Photovoltaic (PV) Module Sizes

10.3.2 SNARF, New Standard: Specification of FAI for Perovskite Photovoltaic (PV) Industry



Motion: Approve the SNARF.
By / 2nd: Yu Shi (Valiant) / Rulong Chen (Runergy)
Discussion: Dengyuan Song(DASOLAR): There are tens of thousands of materials, but it is unclear what they are used for, how much they are used, and whether they have intellectual property rights.
Yaohua Mai (JNU): I have been considering this issue for a long time. This technology is very mature.
Vote: 32 in favor and 0 opposed,1 abstain. (Total 33 companies.) Motion passed.
Attachment: 12 Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production

10.3.3 SNARF, Revision to SEMI PV79-0818, Test Method for Exposure Durability of Photovoltaic (PV) Cells to Acetic Acid Vapor

Motion: Approve the SNARF.
By / 2nd: Ruirui Lv(CSI) / Rulong Chen (Runergy)
Discussion: Rulong Chen (Runergy): The flux includes sodium ions, does it need to be renamed?
Dengyuan Song(DASOLAR):. It is recommended that the scope should not be changed, but should be revised within the scope.
Ruirui Lv(CSI): Sure.
Vote: 33 in favor and 0 opposed (Total 33 companies.) Motion passed.
Attachment: 22 20231116 SEMI PV79-0817 AMD overview-final-V4

10.4 *Five-Year-Review*

None

10.5 *SNARF(s) Granted a One-Year Extension*

None

11 Next Meeting and Adjournment

The next meeting of the PV & PV Materials China TC Chapter is TBD.

For more information, please visit Standards Calendar at <http://www.semi.org/en/standards>

Adjournment: 18:30

Respectfully submitted by:

Cassie Li

SEMI China

Phone: 86-21-60277645

Email: cassieli@semi.org



Minutes tentatively approved by:

Dengyuan Song (DASOLAR), PV Committee and PV Materials Committee China TC Chapter Co-chair	2023.11.24
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Table 14 Index of Available Attachments#1

<i>Title</i>	<i>Title</i>
1 Chinese SEMI Standard Meeting Reminders	2 China PV Standards Committee Fall Meeting 2023 Agenda final
3 China PV&PVM TC Joint Spring Meeting Minutes 20230413-v1	4 SEMI Staff Report2023.11.16
5 2023 年秋季会议-电池工作组汇报 20231116	6 2023 年秋季会议-BIPV 工作组汇报(1)
7 SEMI PV Module TF Report 2023-11-16	8 SEMI 中国光伏标委会设备工作组工作汇报(2023 秋季会议) (密级：不涉密)
9 Perovskite PV Modules Task Force 2023-11- 16	10 SEMI PPT Template-Guide for Specifying Low Pressure Horizontal Diffusion Furnace-letter ballot (密级：不涉密)
11 7047 - Std-Photovoltaic Reapproval of SEMI PV82-0318-天合	13 Practice for metal wrap through (MWT) back contact PV module assembly 上海交通大学
15 SEMI PV88 ballot(1)	19 SEMI Doc draft 7055 - Guide for Tube PECVD Graphite Boat Materials for Solar Cell Production V2 (密级：不涉密)20231115V2
20 SNARF_Specification of Terrestrial Perovskite Photovoltaic (PV) Module Sizes	21 SNARF_ Specification of FAI for Perovskite Photovoltaic (PV) Industry
21 SNARF_Specification of FAI for perovskite photovoltaic (PV) industry(1)	22 20231116 SEMI PV79-0817 AMD overview-final-V4
22 SNARF_Test Method for Exposure Durability of Photovoltaic (PV) Cells to Acetic Acid Vapor-HB	A&R 7047
A&R 7048	A&R 7049
A&R 7050	A&R 7051

#1 Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact [SEMI Staff Name] at the contact information above.