

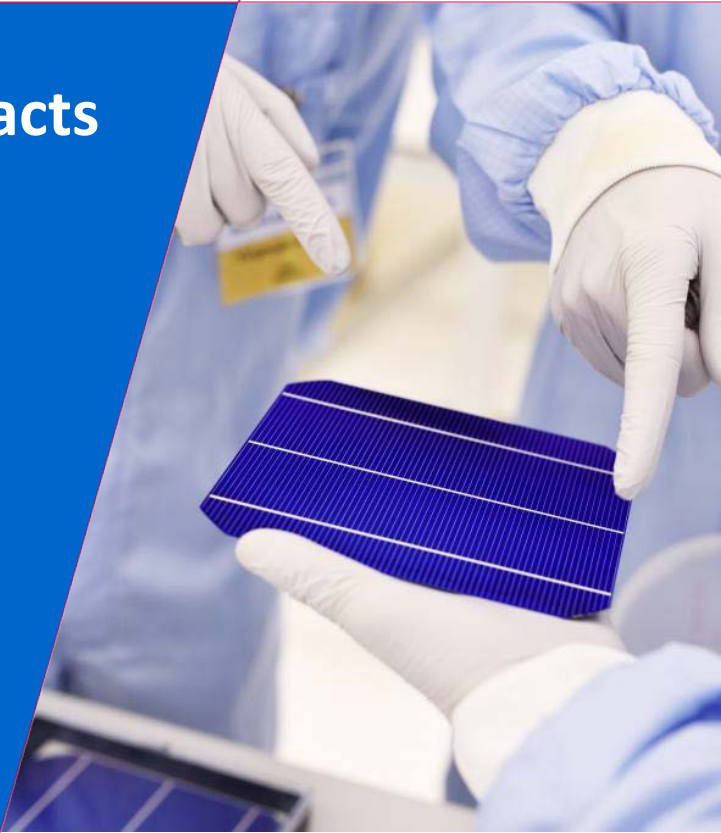
Advancing PV: from passivation to contacts

– A passivating contact workshop



Jimmy Melskens, Bart Macco, Erwin Kessels

Wednesday 31 January 2018 – Eindhoven, the Netherlands



TU / **e**

Technische Universiteit
Eindhoven
University of Technology

Where innovation starts

Welcome to Eindhoven...



... and Eindhoven University of Technology!



Department of Applied Physics and Electrical Engineering

Plasma and Materials Processing group



Group expertise

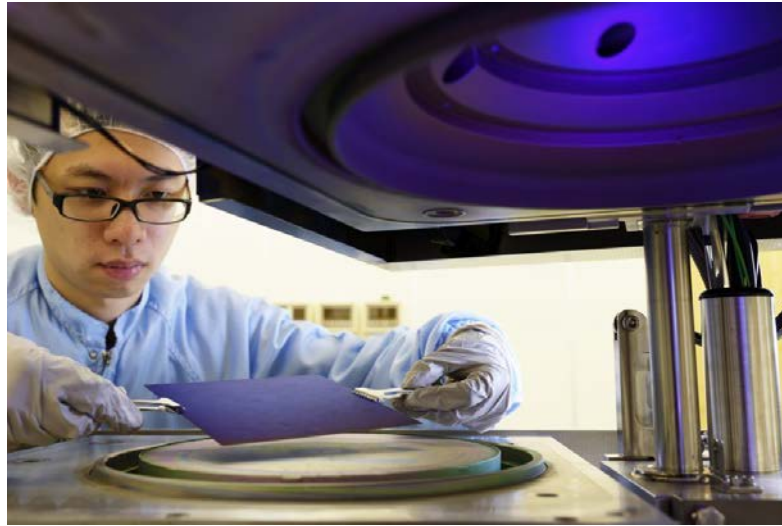
- Plasma processing
- Thin film deposition
- Nanomaterials
- Variety of applications
 - *nanoelectronics*
 - *solar cells (c-Si, perovskite, CIGS)*
 - *solid-state batteries*
 - ...

c-Si research focus @ TU/e

- Passivating layers & contacts
- Material development by atomic layer deposition

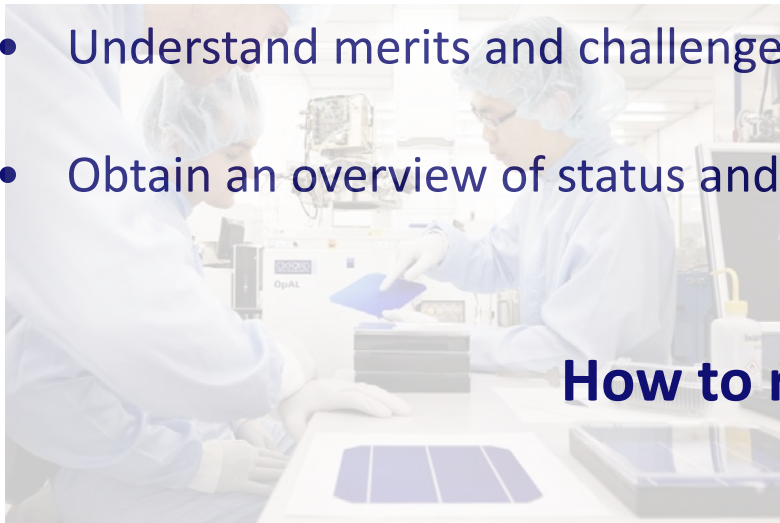


Why this workshop? → bring more focus on fundamentals



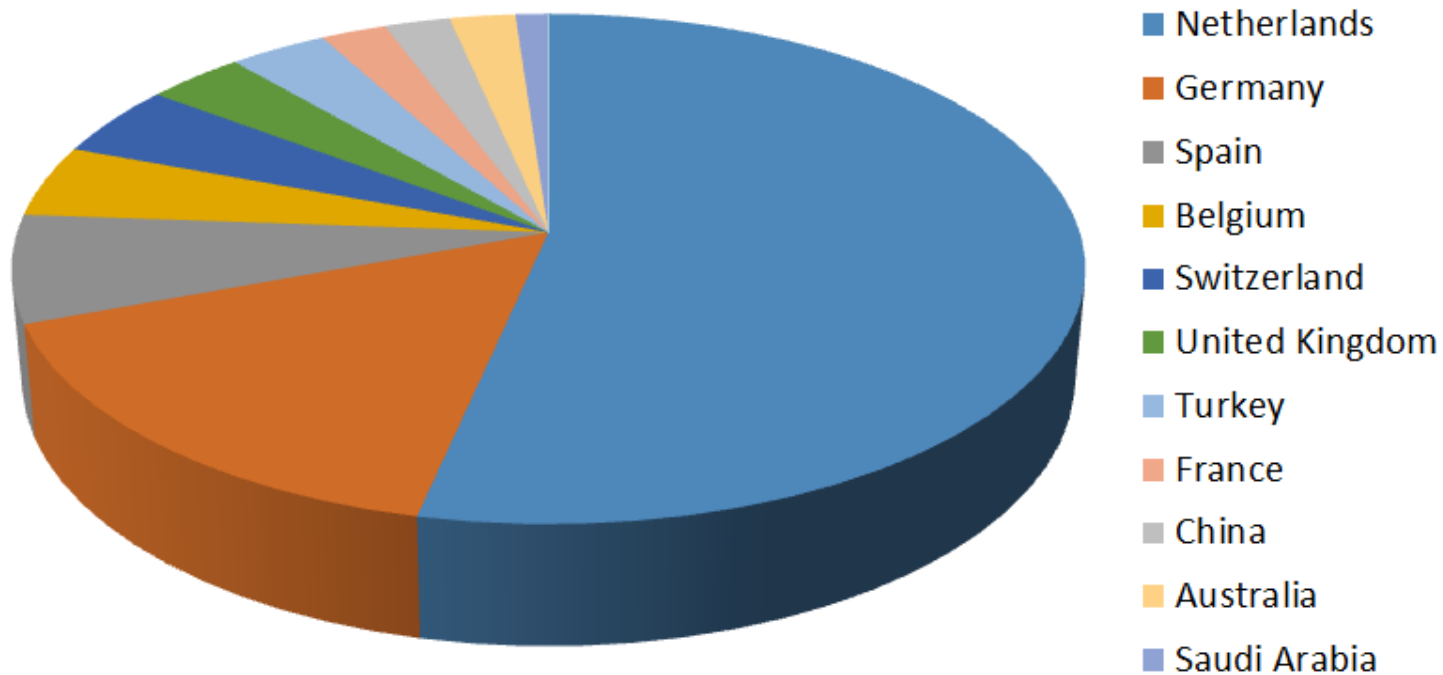
Why this workshop? → bring more focus on fundamentals

- Passivating contacts is a hot topic
- Provide a platform to learn more about passivating contacts
- Enable in-depth discussion on underlying physics and materials science
- Understand merits and challenges of passivating contact materials
- Obtain an overview of status and prospects of passivating contacts



How to realize this?

Good turnout: 88 participants from 11 countries



**Participants + (young) speakers
+ funding → interesting discussions!**

Workshop program – morning session

Historical perspective: PV technology from classical to novel materials

- **Prof. dr. Wim Sinke (ECN / UvA) (9:10 – 9:30)**
“Silicon PV technology development in new perspective”



- **Dr. Lars Korte (HZB) (9:30 – 10:15)**
“Introduction to passivating contacts”

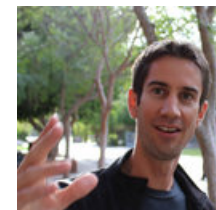


Break (10:15 – 10:45)

- **Dr. Frank Feldmann (F-ISE) (10:45 – 11:45)**
“Passivating contacts based on poly-Si”



- **Dr. Mathieu Boccard (EPFL) (11:45 – 12:45)**
“Passivating contacts based on thin-film silicon and alloys”



Workshop discussion moderators

First part of program (9:10 – 11:45)

Dr. Bram Hoex (UNSW)



Dr. Bart Geerligs (ECN)

Second part of program (11:45 – 12:45 & 14:30 – 17:00)

Dr. Paula Bronsveld (ECN)



Dr. Bart Macco (TU/e)

Time planning per speaker: 2/3 presentation + 1/3 discussion

→ **your active participation is appreciated!**

Workshop program – afternoon session

Lunch with poster session + group picture (12:45 – 14:30)
(just outside lecture room)

- **Dr. Martin Bivour (F-ISE) (14:30 – 15:30)**
“Passivating contacts based on metal oxides”



Break (15:30 – 16:00)

- **Dr. Thomas Allen (KAUST) (16:00 – 17:00)**
“Electron-selective contacts for crystalline silicon solar cells”



Closing

Drinks @ faculty pub “de Salon” (6th floor)

(WiFi available through “eduroam” or “TUE-guest” networks)

Advancing PV: from passivation to contacts (on LinkedIn)

The screenshot shows a LinkedIn group page with the following elements:

- Group Header:** "Advancing PV: from passivation to contacts" with 6 members, a gear icon for "Manage", and a "Member" badge.
- Conversation Start:** A box with a profile picture and the text "Start a conversation with your group" and "Enter a conversation title...".
- Conversations Tab:** A list of posts by Jimmy Melskens, Manager at Eindhoven University of Technology.
 - Post 1:** "New review paper on the physics of silicon heterojunction solar cells and passivating contacts". Text: "A new review paper on the underlying physics of silicon heterojunction solar cells and passivating contacts has been published: R.V.K. Chavali, S. De Wolf, and M.A. Alam, 'Device physics underlying silicon heterojunction and passivating-contact solar ... Show more'".
 - Post 2:** "Upcoming event: passivating contact workshop @ Eindhoven University of Technology". Text: "More than 80 people from 11 different countries have registered for the upcoming passivating contact workshop at Eindhoven University of Technology on 31 January 2018. For more information please have a look at <http://www.atomiclimits.com/2017/11/06/> ... Show more".
- ABOUT THIS GROUP:** "The 'Advancing PV: from passivation to contacts' Group on LinkedIn is a networking platform for photovoltaics professionals (scientists, technologists, engineers, consultants, entrepreneurs, etc.) particularly interested in the topics of silicon surface passivation and passivating contacts."
- MEMBERS:** A row of 6 member profile pictures and an "Invite others" button.
- Promoted Content:** Three promotional cards for "Polymer Characterization", "Are You A Company Owner?", and "How do you GC?".
- Footer:** "About Feedback Privacy & Terms LinkedIn LinkedIn Corp. © 2018".

Goals

- Enable easier access to latest developments in surface passivation and passivating contacts
- Information sharing for PV researchers & professionals
- Build a community

You are welcome to join!

Special gift for the first 3 new posts 😊

Advancing PV: from passivation to contacts (on LinkedIn)

The screenshot shows a LinkedIn group page for "Advancing PV: from passivation to contacts" with 6 members. The page features a header with the LinkedIn logo, a "Back to LinkedIn.com" link, and a "Member" button. Below the header, there is a "Start a conversation with your group" section with a text input field. The main content area is divided into two columns. The left column contains two posts by Jimmy Melskens, Manager at Eindhoven University of Technology. The first post is titled "New review paper on the physics of silicon heterojunction solar cells and passivating contacts" and includes a link to a review paper. The second post is titled "Upcoming event: passivating contact workshop @ Eindhoven University of Technology" and mentions a workshop on 31 January 2018. The right column contains an "ABOUT THIS GROUP" section, a "MEMBERS" section with 6 member avatars, and a "Promoted" section with three advertisements: "Polymer Characterization", "Are You A Company Owner?", and "How do you GC?".

Goals

- Enable easier access to latest developments in surface passivation and passivating contacts
- Information sharing for PV researchers & professionals
- Build a community

Workshop main findings will be available online shortly



Dr. Ingrid Romijn (ECN)



Dr. Jimmy Melskens (TU/e)