

Reliable & Durable Communication: Consistently Connecting DuraMAT Messages with Target Audiences

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DuraMAT Webinar

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SAVE THE DATE: The DuraMAT Fall Workshop 2023 in September!



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We are looking forward to seeing you in person at the DuraMAT Fall Workshop 2023, to be held at the State Bar of New Mexico in NE Albuquerque, for a review of our current project portfolio. We are exploring options for remote attendance for those who are not able to join us in person. Registration is \$130.00. <https://www.duramat.org/news-and-events/workshops>

[Register here](#)

Full agenda to come soon.

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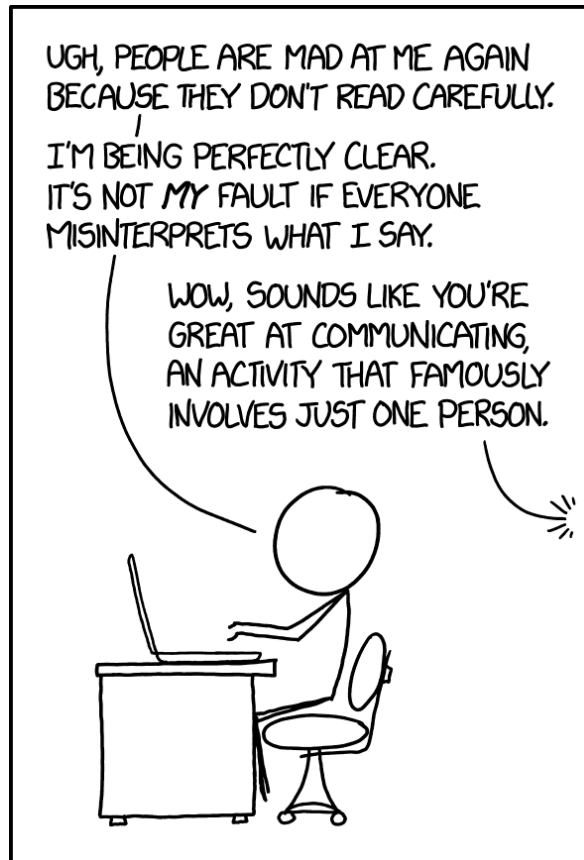
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Communications

If you didn't communicate it well, it didn't happen



We're trying to change the way
other people think or work

We must get the message into
the reader's brain

Minimize the time and effort
they must invest

Example

Investigation of the crack propensity of co-extruded polypropylene backsheets for photovoltaic modules



In short: Overall co-extruded PP back-sheets show great potential to be a valid replacement of standard PET-based backsheets in PV modules.

[Gernot Oreski](#)^a  , [Chiara Barretta](#)^a, [Astrid Macher](#)^a, [Gabriele Eder](#)^b, [Lukas Neumaier](#)^c, [Markus Feichtner](#)^d, [Minna Aarnio-Winterhof](#)^e

Articles are now encouraging this way of thinking with Highlights:

Highlights

- Cracking of backsheets is a critical failure mechanism of PV modules.
- Solder bump test coupons proved to be suitable for investigating crack propensity.
- Sequential stress test is necessary to provoke backsheets cracking.
- No cracking was observed for co-extruded PP backsheets.
- PP backsheets show great potential to replace standard PET based backsheets.

PV Magazine article

Reintroducing co-extruded backsheets in PV industry?
Not a lost battle

Every technical communication has a surprise

Identify the surprise

Spoil it immediately in the title

Repeat it

Every technical communication has a surprise

Examples

X has a bigger effect than Y

We observed A for the first time

Existing models are wrong about Z

Non-examples

We did a study on X

We used measurement tool A on specimen B

We tested N samples

Spoil the surprise

Example:

Original title

Thermal and electrical effects of partial shade in monolithic thin-film photovoltaic modules

New title

Shadows from people and tools can cause permanent damage in monolithic thin-film PV modules

Activity: Spoil the surprise

Consider the last paper you wrote

Identify the surprise

Create a short title that gives away the surprise

Let's workshop an example together

Activity: Spoil the surprise

Consider the last paper you wrote
Identify the surprise
Create a short title that gives away the surprise

Fill in your new title during the rest of the session. Titles with more *hearts* will win at the end.



Mine is the best response!

by Rando Calrissian



<https://tinyurl.com/duramat-surprise-activity>

Communication Goals

Why does DuraMAT need to communicate?

Communication Goals

- To get DuraMAT insights into the hands of industry where they will have impact
- To make our findings accessible to other PV researchers

Current Outreach Efforts

- Journal Articles
- Webinars
- Duramat.org
- DuraMAT Annual Report
- Two Annual Workshops
- News Stories
- Conferences
- Social Media

Future Outreach Efforts

[PollEv.com/nrelwebinars303](https://pollEv.com/nrelwebinars303)

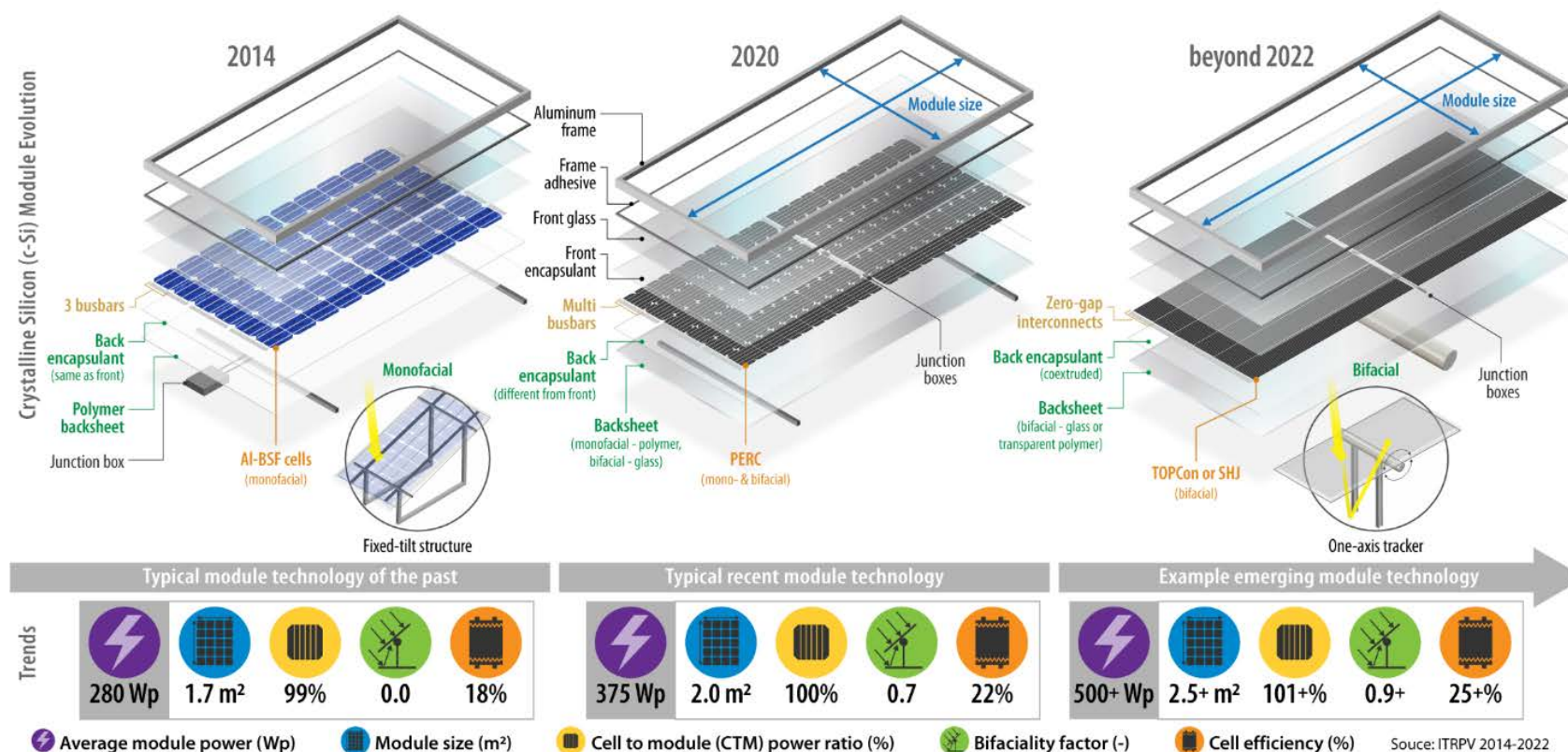
- *Word Cloud:* What are we missing? Which conferences or publications would reach our audiences that we do not present at/publish DuraMAT work in now?

Lessons Learned

Tech Scouting Report & DuraMAT Feature Story

Technology Scouting Report: Case Study

- Track technology changes that could affect PV module reliability
- Assess changes in module reliability risks over time
- Identify the need for new research related to reliability



Example: Thinner Glass

Drivers & Benefits

bifacial module technology

- need for transparent backsheet

decreasing weight - cost savings

- lighter glass reduces shipping and installation costs, but ultrathin glass can be expensive

Potential Risks

change in structural integrity

- possibly larger deflection due to mechanical loading

lower resistance to environmental factors and handling

- decreased resistance to severe weather events (hail, wind, snow), and handling during installation

change in heat treatment

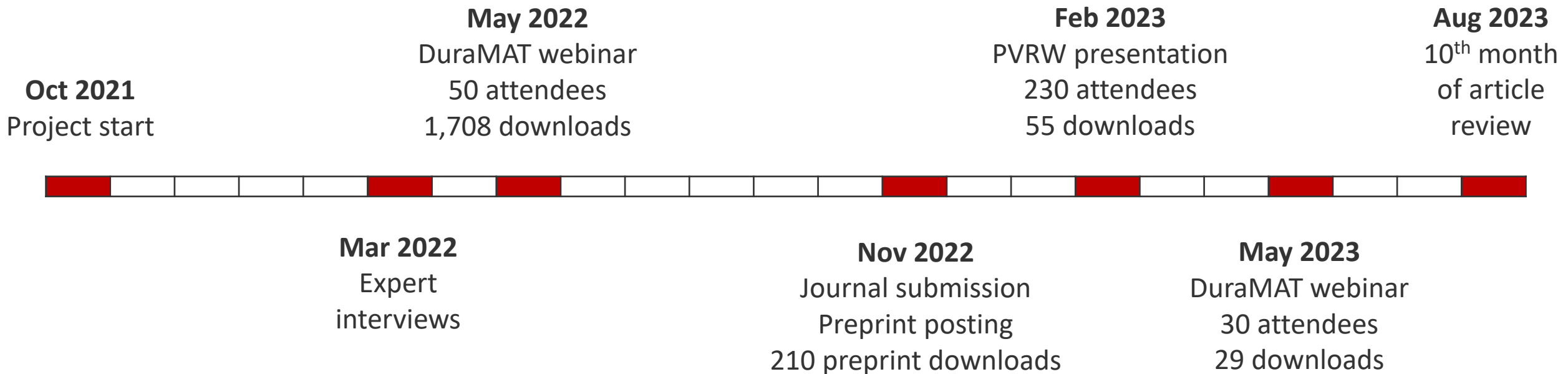
- thinner glass can require a process change from tempering to heat-strengthening, which can increase the risk of glass breakage

Technology Scouting Report: Communication Values & Tradeoffs

Approaches	Value			Audience				
	Comprehensive	Credible	Timely	Researchers	Industry media	Engineers & test labs	Downstream	DOE/SETO
Peer-reviewed journal article	Orange	Orange	White	Orange	White	Orange	White	Red
NREL technical report	Orange	Red	Red	Red	White	Red	Red	Orange
Solar media white paper	White	White	Red	White	Orange	Red	Orange	White
News article/press release	White	White	Orange	White	Orange	White	Red	White
Conference presentation	White	White	White	Red	White	Red	Red	White
Conference paper	Red	Red	White	Red	White	Red	Red	White
DuraMAT webinar	White	White	Orange	Red	White	Red	Red	Red

Orange=best, red=OK (yellow-highlighted approaches are the ones we chose)

Technology Scouting Report: Timeline



Download counts are as of August 2023

Preprint available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4273054

Technology Scouting Report: Lessons Learned

- Consider communication values and target audiences, weigh tradeoffs of different publication approaches
- Consider approaches that substitute for or complement academic journal articles:
 - Journal articles can result in long delays
 - They may not reach all target audiences
- Consider how to provide incentives to researchers/authors for publishing in non-traditional venues that further program goals

DuraMAT Feature Story

- <https://www.nrel.gov/news/features/2022/aging-gracefully-how-nrel-is-extending-the-lifetime-of-solar-modules.html>
- 3,900 unique views since March 2022 publication
- Top NREL news story for the next month
- 4,400 views of video
- Great for raising broad awareness of DuraMAT
- Also helped explain DMX concept to industry partners

The Challenge

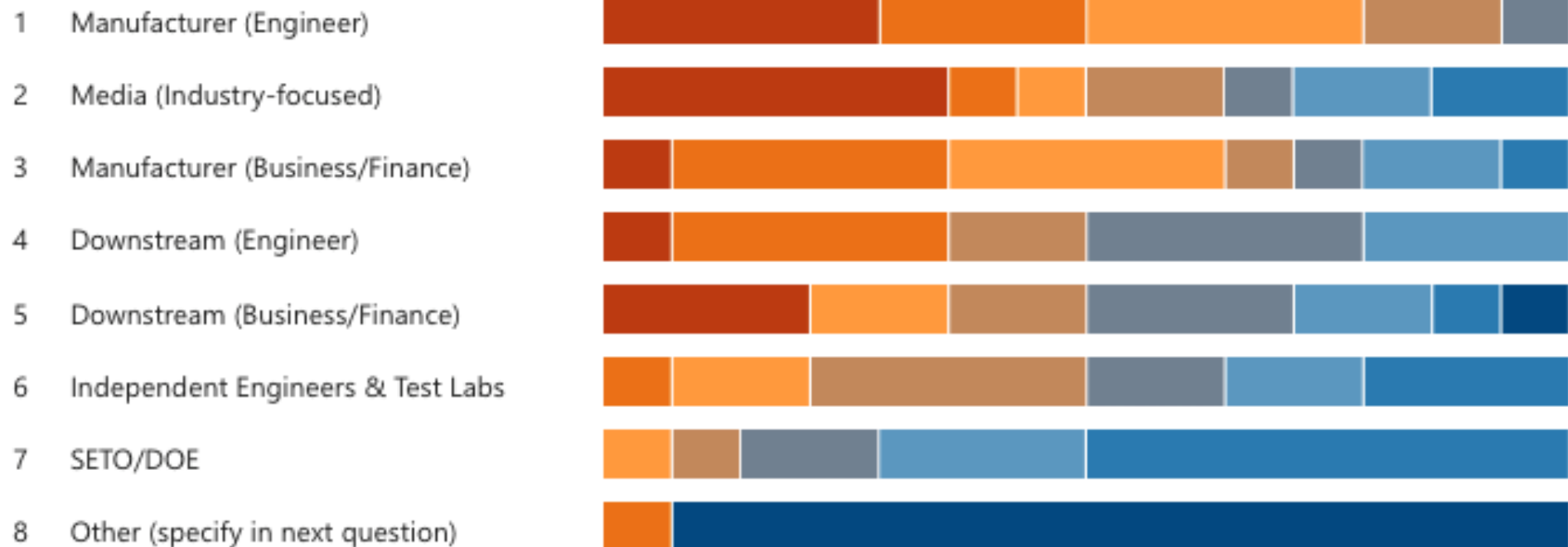
Not Reaching Key Audiences Effectively

2. Rank these audiences by which should be the biggest focus of our future outreach efforts.
(i.e. Which audiences are important, but lack awareness of DuraMAT's work and impacts?...

14 Responses

Rank Options

First choice ■ ■ ■ ■ ■ ■ ■ Last choice



Rank the questions below by their relevance to your needs. (top being most relevant)

13

What is the biggest reliability concern you have right now?



1st

What is one important question DuraMAT could answer IN 3 - 5 YEARS that would make a difference?



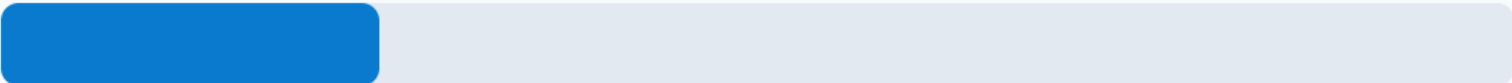
2nd

What is one important question DuraMAT could answer IN THE NEXT YEAR that would make a difference?



3rd

What are you worried about for 2025 modules?



4th

Think “Different”, Not Dumb!

“The speed of solar deployment amplifies the opportunity cost of delayed improvements that we're working on. It's a frustrating reality--nobody is waiting on what we're doing.”

- Clear succinct messages, with academic-grade supporting info
- Context is critical, and different audiences need different context
- Rethink your questions
 - What are you worried about right now? vs. What should DuraMAT work on this year?
- Combination strategies work well
 - Paper + video or factsheet
 - LinkedIn sharing packages

Potential Audiences

We want your feedback!

What are DuraMAT's Key Audiences?

1st step to communication:

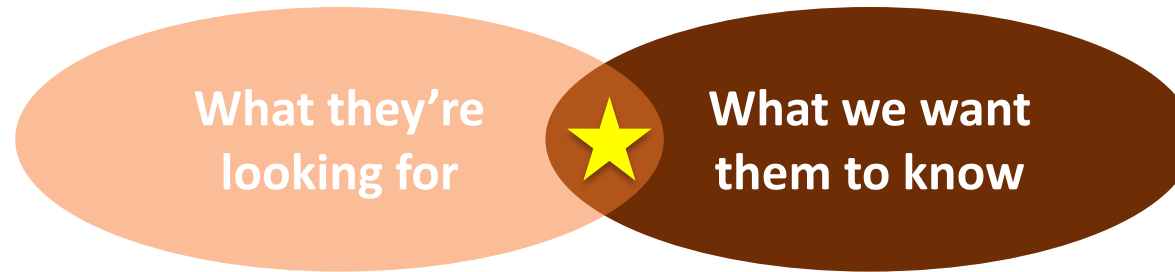
Know your potential audience...

...so that's where we've started.

Initial Audience Brainstorming

Technical direct engagement	Decision makers	End users of tech info	PV research community
Test labs	Policy writers	Insurers	Grad students
DuraMAT IAB	Investors	PV syst. owners	Academics (not just solar)
National labs	Financiers	General media	Sustainability researchers
SETO early career tech staff	State govt. (e.g., CPUC)	Module mfr. investors	University researchers
SETO tech manager	Congress	Eng. at module mat. supplier	Energy justice researchers
Reliability mgr. at module mfr.	Executive branch	Solar media	
Independent engineers	EPCs/installers	Economists	
Certification orgs (e.g., UL)	DOE	Eng. at PV test lab	
Engineer at module mfr.	PV developers	Eng. at PV cell mfr.	
	Syst. owners (utils., commercial)		
	Energy justice orgs		

Three Example Audiences of High Importance



Module manufacturing investors

- ★ Technology trends & risks
- ★ Credible info on technology choices
- ★ Technology vetting status & methods
- ★ Technical info for their consultants

SETO early career tech staff

- ★ Basic info on PV reliability
- ★ Data to inform funding priorities
- ★ Current technology status
- ★ Tools to analyze PV reliability work

Solar media

- ★ Innovations
- ★ Future directions
- ★ Key research takeaways
- ★ Unique subjects & approaches

Go-to sources

Consultants
Popular press
Solar media
Trade shows
Technical digests

Conference presentations
Papers
Review calls
Solar media
YouTube

Interviews
Nature/Science briefs, news
NREL News
Press releases
Social media
Trade journals

We want your feedback!

PollEv.com/nrelwebinars303

- Rank DuraMAT's selected audiences by importance
- Which audiences are we missing?

Something You Can Use Now

And the winner of the high-five
for the title rewrite is...



Your best single-junction solar cell does not always make an efficient tandem partner

by Lorelle 🤖



<https://tinyurl.com/duramat-surprise-activity>

Next Steps

Next Steps

- Finalize the list of key audiences based on this and other feedback
- Design a communications plan to reach these
- Stay tuned for a follow-up webinar at the DuraMAT workshop that will report on this work and offer more communication tools
- Tips you can use today
 - Practice getting straight to the point
 - Target key audiences
 - Tailor your message to THEM
 - Consider alternatives/supplements to academic literature



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Thank You

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