

Bringing Chemistry to Life podcast series

ThermoFisher
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Season 3: The 2021 C&EN's Talented 12

Episode 9: Energy harvesting and self-sustainable greenhouses



Episode abstract

While most love adventure, it still takes courage and determination to go find it and commit to it. Dr. Derya Baran, a Turkish native, who studied in Austria, Germany, and the UK before now working in Saudi Arabia, has ample courage and determination that have provided a life of adventure!

This is one of our best explorations of the link between the person and the science. Derya, an academic researcher and entrepreneur, that can't stop thinking about how her work can benefit people's lives. She develops smart and functional materials for energy harvesting and conversion. Specifically, innovative organic materials with photovoltaic properties that can be used in challenging (hot and/or humid) environments and present unique properties of transparency, color, and ease of manufacturing, relative to traditional silicon-based technologies. Her materials are enabling incredible concepts, such as self-sustaining greenhouse that can generate and save energy to enable agriculture in inhospitable environments.

There is a lot to like here... great science that promises to address very important global issues and the personal story of a smart, determined, woman, full of unlikely, brave choices.

About our guest

Derya Baran, PhD

Associate Professor, Materials Science and Engineering, King Abdullah University of Science and Technology (KAUST)

Derya's group site: <https://omegalab.kaust.edu.sa/>

C&EN Talented 12 profile of Derya: <https://cen.acs.org/materials/electronic-materials/Derya-Baran/99/i30>

Derya's Recent Publications:

- [All Slot-Die Coated Non-Fullerene Organic Solar Cells with PCE 11%](#)
- [Ink Engineering of Transport Layers for 9.5% Efficient All Printed Semitransparent Nonfullerene Solar Cells](#)
- [Reducing the Efficiency-Stability-Cost Gap of Organic Photovoltaics with Highly Efficient and Stable Small Molecule Acceptor Ternary Solar Cells](#)
- [Reduced Voltage Losses Yield 10% Efficient Fullerene Free Organic Solar Cells with >1 V Open Circuit Voltages](#)
- [Designing Ternary Blend Bulk Heterojunction Solar Cells with Reduced Carrier Recombination and a Fill Factor of 77%](#)

Derya's Content Recommendations:

- [New Solar Photovoltaics for Cities of the Future](#) (Derya's talk at the World Economic Forum)
- [Global Young Academy](#) (Connecting young scientists throughout the world)
- [Red Sea Farms](#) (A sustainable agriculture start up)
- [Athena - Ben Böyleyim](#) (One of Derya's favorite songs)
- [YGA.org](#) (an education NGO in Turkey)

This podcast series is available via the following links



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