

Bringing Chemistry to Life podcast series

ThermoFisher
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Season 1: The 2019 C&EN's Talented 12 Episode 4: Super smooth microchips



Episode abstract

If you thought chemistry is basically just boiling stinky mixtures in a flask, this is the episode for you. There is no better demonstration for how chemistry is foundational to practically all sciences and technologies. What Dr. Tina Li does at CMC Materials is find new ways to ensure semiconductor layers in electronic components manufacturing are as smooth as possible, to allow the deposition of as many layers as possible on a single wafer. This is the key to enable increased complexity and computational power for all electronic devices.

Dr. Li explains how this “sanding” at the nanoscale level works. Selective chemical reactions work in synergy with abrasion to achieve unbelievable levels of smoothness, measured in nanometers. We discuss the chemistry that helps enable our smartphones and computers, but also about a journey of professional and personal growth and what it means to do chemical research in an industrial environment.

About our guest

Tina C. Li, PhD

Customer Technology Engineering Director,
CMC Materials

Tina's Company site:
<https://www.cmcmaterials.com/>

C&EN's Talented 12 profile of Tina:
<https://cen.acs.org/materials/electronic-materials/Tina-Li/97/i33>

Recent Publications from Tina:

- [CMP Solutions for 3D-NAND Staircase CMP](#)
- [SiO₂ Aerogel Templated, Porous TiO₂ Photoanodes for Enhanced Performance in Dye-Sensitized Solar Cells Containing a Ni\(III\)/\(IV\) Bis\(dicarbollide\) Shuttle](#)
- [Ni\(III\)/\(IV\) Bis\(dicarbollide\) as a Fast, Noncorrosive Redox Shuttle for Dye-Sensitized Solar Cells](#)
- [Electronic tuning of nickel-based bis\(dicarbollide\) redox shuttles in dye-sensitized solar cells](#)
- [Surface Passivation of Nanoporous TiO₂ via Atomic Layer Deposition of ZrO₂ for Solid-State Dye-Sensitized Solar Cell Applications](#)

Tina's Content Recommendations:

- [An Astronaut's Guide to Life on Earth](#) (a book by Chris Hadfield)
- [The 7 Habits of Highly Effective People](#) (a book by Stephen R. Covey)
- [Working Women: Valerie Jarrett and the Importance of Mentorship](#) (The Michelle Obama podcast)
- [The Surprising Power of Questions](#) (an HBR post by Alison W. Brooks and Leslie K. John)
- [No Rules Rules: Netflix and the Culture of Reinvention](#) (a book by Reed Hastings & Erin Meyer)

This podcast series is available via the following links



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