

# Bringing Chemistry to Life podcast series

ThermoFisher  
SCIENTIFIC

Season 2: The 2020 C&EN's Talented 12  
Episode 5: Questioning the limits of Moore's law



## Episode abstract

The unstoppable progress in computational power that we have experienced in the last few decades, and that has changed the world as we know it, is in large part due to the relentless efforts of increasing the density of transistors in microprocessors. Moore's law, predicting microchip transistor density doubling every two years, has been consistently and empirically proven, but we are now approaching physical limitations as resolution surpasses the 5 nm barrier to approach molecular dimensions. Developing new paradigms for computers of the future is the work that Rudy Wojtecki and the conventions-challenging teams at IBM Almaden Research Center are doing. Rudy has a polymer chemistry background and is a true multidisciplinary scientist at heart. His work on self-assembling polymers and surface chemistry is innovating the way microchips are manufactured, and the way research is done at Almaden is providing a brilliant example of different scientific disciplines working together to accelerate progress.

## About our guest

### Rudy J. Wojtecki, PhD

Manager – Electronic Materials, Devices & Process Technology, IBM Research

Rudy's company and site page: <https://www.research.ibm.com/labs/almaden/>

Rudy's Google Scholar Page: [https://scholar.google.com/citations?user=N\\_gFshYAAAAJ&hl=en](https://scholar.google.com/citations?user=N_gFshYAAAAJ&hl=en)

C&EN Talented 12 profile of Rudy:  
<https://cen.acs.org/physical-chemistry/surface-chemistry/Rudy-Wojtecki/98/i31>

## Recent Publications from Rudy:

- [Fifteen Nanometer Resolved Patterns in Selective Area Atomic Layer Deposition – Defectivity Reduction by Monolayer Design](#)
- [Surface Initiated Polymer Thin Films for the Area Selective Deposition and Etching of Metal Oxides](#)
- [Additive Lithography – Organic Monolayer Patterning Coupled with an Area Selective Deposition](#)
- [Extending the compositional diversity of films in area selective atomic layer deposition through chemical functionalities](#)
- [Developments in dynamic covalent chemistries from the reaction of thiols with hexahydrotriazines](#)

## Rudy's Content Recommendations:

- [Molecules that Changed the World](#) (a book by K.C. Nicolaou & T. Montagnon, Noble Laureate)
- [Disparate compound eyes of Cambrian radiodonts reveal their developmental growth mode and diverse visual ecology](#) (a paper by Paterson et al. in Science Advances)
- [A parapathecid stem anthropoid of African origin in the Paleogene of South America](#) (paper by Seiffert et al.)
- [Holocene Extinctions](#) (a book edited by Samuel Turvet)
- [Hidden Forces](#) (a podcast series from financial analyst Demetri Kafinas)

This podcast series is available via the following links



Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use. © 2022 Thermo Fisher Scientific Inc. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. 01\_2022

thermo scientific