to cover the most important aspects of AFM to help readers understand the practical and theoretical concepts behind it. Because of the complexity of the apparatus, the book tackles many practical engineering problems shared between instrumentation and nanoscience, including piezoelectricity, lock-in amplifier detection, motorized positioners and scanners, and vibration isolation.

The quest for exhaustivity and completeness also led Voigtländer to include some basic concepts in the first third of the book, which covers harmonic oscillators, Fourier transforms, and analog and digital electronics. More advanced readers may want to skip those early chapters. They may also want the chapter on linearized dynamic modes to get to the point more quickly and assume more mathematical background knowledge. However, advanced undergraduate students and scientists not familiar with physics will certainly appreciate the slower progression.

The other two-thirds of the book presents necessary background information about force-scanning microscopy and meticulously discusses the most commonly used operation modes of AFM, from static contact to dynamic frequency modulation AFM. *Atomic Force Microscopy* covers most of today's technology fairly and realistically, which is valuable when marketing from manufacturers often oversells the features and capabilities of their instruments. The theoretical content is rigorous and pedagogically effective, giving readers a broad and deep understanding of the subject. Each chapter contains a solid bibliography to guide further learning.

Readers hoping to study a single application of AFM can certainly focus their attention on selected chapters. However, they will probably miss out on pertinent information provided by the frequent comparisons of different modes, with pros and cons of each mode depending on operating conditions. I suggest that, instead, readers complete an initial reading (perhaps skipping the basic first chapters and the more technical final chapters) and then keep the book at hand as a reference work. That advice may seem daunting for newcomers given the book's length, but a more comprehensive reading is certainly worth the time for anyone planning to use the technique regularly. It will also be helpful for anyone wanting to dig further into the specialized literature. For a shorter and lighter introduction with less emphasis on equations, readers may turn to *Atomic Force Microscopy* by Peter Eaton and Paul West (2010).

Whether readers are just starting in the field or running an atomic force microscope daily, Voigtländer's *Atomic Force Microscopy* will be an excellent companion. It will usefully complement the user manual or the application notes of any instrument. I wish it had been available when I was beginning my journey in nanoscience instrumentation 15 years ago, and I will certainly use it as a reference book for all the students coming through our laboratory's door from now on.

**Ludovic Bellon**
*Université de Lyon, École Normale Supérieure de Lyon, and CNRS*
*France*

# NEW BOOKS & MEDIA


## Georgia's Terrific, Colorific Experiment

**Zoe Persico**
**Running Press Kids, 2019. $17.99**

In this book aimed at elementary school students, budding scientist Georgia clashes with her family of artists when they urge her to get creative with her experiments. "Science is about proper calculations and not silly imaginative ideas!" she scolds them. But when Georgia hits a roadblock, she looks to a color wheel to inspire her next experiment. The book sends a lovely message about the value of both science and art, and Zoe Persico's stunning illustrations enhance the appeal. —MB

## Science Mom

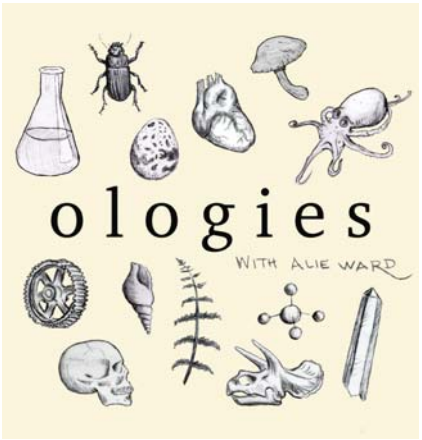
**Jenny Ballif, host**
**YouTube, 2016–present**

Which things conduct electricity and why, how to build a strong math foundation, and what extraordinary properties water has are just a few of the topics tackled by molecular biologist Jenny Ballif on her YouTube channel *Science Mom*. According to Ballif, her inspiration sprang from the weekly science demonstrations she started doing for her son's second-grade class. The kids began calling her "Science Mom" and the name stuck, she says. Aimed primarily at the elementary school level, the weekly videos are billed as "engaging science activities for kids of all ages." —CC

## Ologies

**Alie Ward, 2017–present**

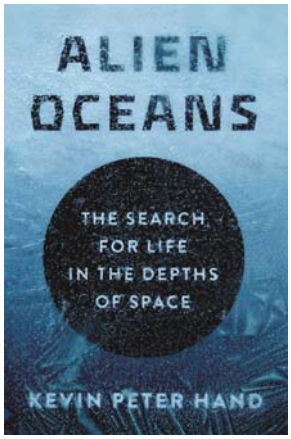
Humorist and science communicator Alie Ward sits down with a wide range of experts to talk about how they became obsessed with their subjects in this engaging interview podcast. Ward is a funny, high-energy host, and her interviews are detailed and accessible. Recent guests have included cryoseismologist Celeste Labedz, psychologist Joseph Ferrari, and neurobiologist Crystal Dilworth. —MB



## Science Vs

**Wendy Zuckerman, host**
Gimlet Media, 2016–present


In every episode of the podcast *Science Vs*, host Wendy Zuckerman talks to experts about the science behind a piece of common wisdom or something in the news. Past episodes include investigations into plastics in our oceans, the health effects of detoxes and cleanses, and whether red wine is really good for us. Recent episodes have focused on the science of detecting and fighting the novel coronavirus. Episodes run about 30 minutes long and are released weekly. —MB




## Alien Oceans

### The Search for Life in the Depths of Space

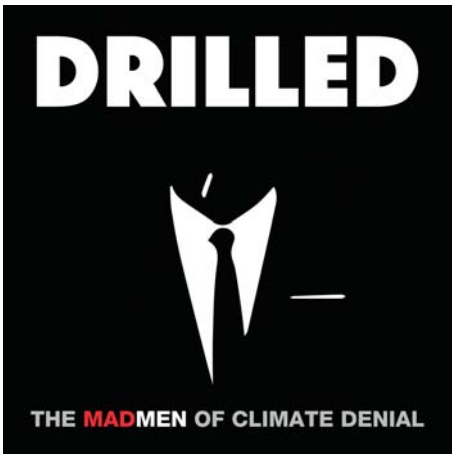
**Kevin Peter Hand**
Princeton U. Press, 2020. $27.95

"Perhaps we are the only ones.... Or perhaps we live in a universe teeming with life," writes NASA planetary scientist Kevin Peter Hand. In his new book *Alien Oceans*, Hand provides an up-to-date look at the search for extraterrestrial life, based on the data gathered by not only robotic spacecraft and Earth-based telescopes but also the exploration of Earth's oceans. He discusses how the ingredients previously thought necessary to sustain life have been revised and what the new Goldilocks requirements are. Instead of looking at inner-solar-system bodies like Mars, he says, the best candidates may lie farther from the Sun, such as the outer-solar-system moons Europa, Enceladus, and Titan. —CC

## Drilled

### A True Crime Podcast about Climate Change

**Amy Westervelt, host**
Drilled News, 2020 (3rd season)

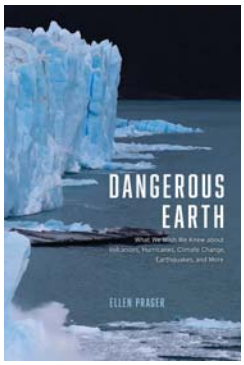



This fascinating and sobering podcast applies investigative journalism to fossil fuels and climate change. The third season, "The Mad Men of Climate Denial," focuses on the ways fossil fuel companies have sought to influence media coverage of climate science. A particularly engaging two-part episode told the story of Mobil Oil PR man Herb Schmertz, who fought for First Amendment rights to be extended to corporations. Episodes are a fast-paced 20 minutes long; the third season concluded in March. —MB

## Dangerous Earth

### What We Wish We Knew about Volcanoes, Hurricanes, Climate Change, Earthquakes, and More

**Ellen Prager**
U. Chicago Press, 2020. $25.00

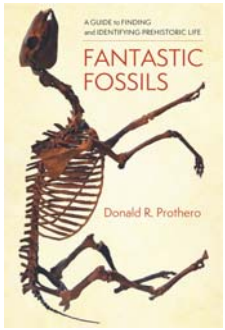



Gale-force winds, torrential rainfalls, catastrophic ground shaking, and searing flows of molten rock are just a few examples of natural phenomena that can be devastating for nearby human populations. In *Dangerous Earth*, marine scientist and author Ellen Prager discusses some of the most destructive natural disasters of recent history, the geologic forces at work, what scientists have learned by studying them, and how much we have yet to understand. —CC

## Fantastic Fossils

### A Guide to Finding and Identifying Prehistoric Life

**Donald R. Prothero**
Columbia U. Press, 2020. $35.00




"Fossils are cool. Fossils are amazing," writes Donald Prothero, geologist, paleontologist, and author of more than 40 books. In his preface to *Fantastic Fossils*, Prothero says his goal in writing the book is to provide more practical information than a simple field guide to aid "fossil enthusiasts of every age." He discusses not only how fossils are formed and where to find them, but also best practices for fossil collecting, a brief history of taxonomy, some of the principal phyla, and what fossils can tell us about past climates and geologic time. A handful of color images and more than 350 black-and-white photos, diagrams, and drawings illustrate the text. —CC PT