

Visual similarities, micro and astronomical

Like many astronomy instructors this past autumn, I have been forced to teach my classes online. That means re-creating PowerPoint presentations, inasmuch as communicating visually on a small screen is different from doing so on a large one. In the process I came to see an old acquaintance in a new way.

The remnant of Tycho's supernova, SN 1572, appears in the left image, taken by the *Chandra X-Ray Observatory*. On the right is a computer model, derived from an electron microscopy image, of SARS-CoV-2. NASA puts the supernova remnant at 45 light-years in diameter; the virus is 0.1 μm across, according to the National Institutes of Health. So the objects differ in size by a factor of 4×10^{24} .

Yet the two share aspects in common. Both are young with respect to the Milky Way, and both evoke dread in those nearby.

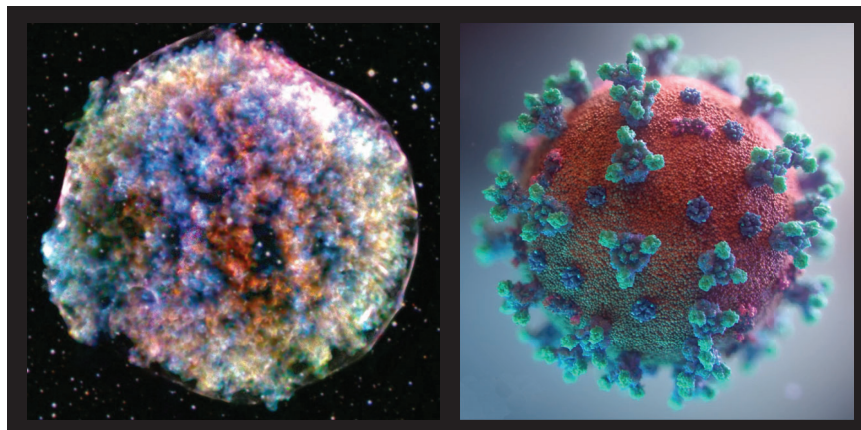
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Tools for a diverse college faculty

Physics departments that want to increase the diversity of their hiring pool (PHYSICS TODAY, October 2020, special careers issue) need to provide clear guidance to candidates, since some of the most interesting aspirants may lack mentors who can advise them on preparing applications. Colgate University has a website, www.colgate.edu/P&A/hiring, that offers help in writing statements on teaching, research, and diversity and inclusion for applicants to liberal arts colleges.

For example, we offer specific prompts for the teaching statement: Tell us what you learned from previous teaching experiences. How would you tailor a course to help students achieve their goals? What courses do you feel best prepared to teach? What have you learned about teaching from your experience as a student or from reading the science education literature?



Tycho's supernova (left) imaged by the *Chandra X-Ray Observatory*. (Courtesy of NASA/CXC/RIKEN & GSFC/T. Sato et al.) SARS-CoV-2 virus (right) from a 3D computer simulation. (Courtesy of Fusion Medical Animation.)

We also specify what information we're looking for in a research statement. What will your lab look like? How will undergraduates contribute to it? And most importantly, we ask applicants to convince faculty from outside their research area that they've identified an exciting area of study where they can make contributions in an undergraduate environment.

We encourage other departments to think carefully about what they seek to learn from applications and to use their websites to share that information. Applicants who receive clear guidance can write more effective applications, which should increase equity in the hiring process.

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A picture's worth the right words

The October 2020 issue of PHYSICS TODAY included an item (page 26) by David Kramer entitled "The Great Lakes are filled to their brims, with no signs of receding." Kramer writes, "Water levels have always fluctuated on the Great Lakes, but the recent extreme seesawing, particularly on the upper lakes—

Superior, Michigan, and Huron—is unprecedented in the century that records have been kept. . . . Michigan and Huron, which are linked and share the same level, stood at record highs in August, 84 cm above their historic average."

The article is interesting, and I do not dispute its general theme. However, the above quoted statement is misleading in that it is not a sound interpretation of the accompanying charts. They clearly show that the "record high" in August 2020 was matched by a similar high around 1987, and fluctuations do not appear significantly greater in recent years than those over the century since 1918. In fact, in 2000–2014, the levels were consistently below the long-term average.

Data presented in a scientific report should be seen to support the arguments and conclusions made. That is particularly important now, when the reliability of "the science" is under sharp scrutiny in disputes about such matters as climate change and epidemiology.

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Correction

February 2021, page 26—The image should have been credited to Point Designs, Lafayette, CO, <https://pointdesignsllc.com>. 