



**2021
Annual Report
Friends of Oak Ridge National Laboratory
March 2021**

The officers and board of directors of the Friends of Oak Ridge National Laboratory are pleased to report on the activities of FORNL for 2021.

The mission of FORNL is to provide

- A mechanism for members to keep in touch with co-workers, retirees, and current ORNL activities,
- For ORNL, an organization whose members can serve as knowledgeable volunteers for ORNL-related activities, and
- Community-wide presentations and events for the public, centered on outstanding scientific and engineering developments, awards, and special topics of national interest.

We are scientists and engineers, as well as individuals from varied backgrounds, who believe we can increase the nation's technological awareness by providing information to teachers, students, and the general public.

The COVID-related restrictions and preferences required a few FORNL activities to be curtailed during 2021. Activities in abeyance included

- *Treasures from the Archives*, monthly extracts from the ORNL history room by Dave McVicker.
- FORNL volunteer support of ORNL walking tours for school and other interested parties.
- FORNL volunteer support for the Oak Ridge bus tours operated by DOE that originated from the American Museum of Science and Energy (AMSE).
- The effort to provide ORNL visitor badges to FORNL members so they can gain access to the laboratory.

Despite the shutdown, FORNL continued its primary activity of hosting the monthly Luncheon Lecture meetings held at noon on the second Tuesday of each month. These Zoom meetings were extremely successful. We frequently attracted more than 60 attendees, a participation level equal to or greater than that of in-person meetings held before the COVID shutdown. The virtual meetings allowed members and guests to attend without being physically present in Oak Ridge, and talented speakers from around the country were able to present talks without the expense of traveling to Oak Ridge. For example, Professor Alan Robock provided insights about *Climatic and Humanitarian Impacts of Nuclear War* from his office at Rutgers University and Charles Forsberg spoke about *Molten Salt Reactors —New Initiatives and New Directions* from the Massachusetts Institute of Technology.



Alan Robock



Charles Forsberg

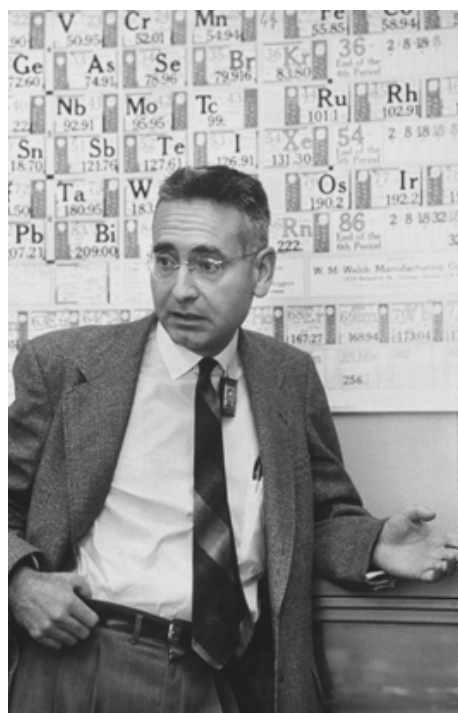
For the first time, Zoom meetings allowed us to serve some FORNL members who have moved from our area, and we were joined by other people in the country who are interested in ORNL research and like our technical offerings. Screen shots found on pages 9 and 10, recorded during a noon Luncheon Lecture, show participant views during the social and business meeting time that precedes the presentation or the discussion period after the talk.

A hybrid meeting format (in-person with Zoom) will be used when in-person meetings resume. People can attend or make a presentation in person or virtually. Using this format, we will be able to restore the intimate social environment that many of our members desire, while allowing and expanding our program choices to other members and guests who prefer virtual attendance.

FORNL had outstanding speakers this year for the Luncheon Lectures. We greatly appreciate the diligence of Ellen Smith, Robert Compton, and Carolyn Krause, who serve on FORNL's Lecture Program Committee that researches and selects the speakers. Morgan L. McCorkle, ORNL Science and Technology Media Manager, also assisted in obtaining two luncheon speakers. The list of 2021 Luncheon Lecture speakers and their topics appears on page 7.

FORNL was also involved in supporting or arranging two events for the community this year. The first event celebrated the completion of the digitization of former ORNL Director Alvin Weinberg's personal papers, a project started by the Children's Museum of Oak Ridge (CMOR) in 2017 to preserve the papers donated to them by the Weinberg family starting in 1986. During 2017, FORNL contributed \$2000 to CMOR toward the \$5000 needed to start the project, and FORNL members assisted the archivist throughout in understanding the context and significance of the documents. Connor Matthews, and the late Stephen Stow, former FORNL board members, were strong advocates for the project.

A Tribute to Alvin Weinberg, including information on the new online database of his scientific publications and other documents, was presented virtually to the public from 7 to 8 p.m., Tuesday, April 20 (Weinberg's birth anniversary). This Zoom presentation was sponsored by the Children's Museum of Oak Ridge and Friends of ORNL. "The purpose of this public online event was to honor Alvin Weinberg's legacy and to celebrate the preservation and digitization of his papers," said Rhonda Bogard, who led the digitization of the papers. Presentations were given by eight speakers, including several on videos, on his early history, his contributions to the development of nuclear reactors and power plants, and his influence on people and policies as a scientific leader and administrator. Weinberg was featured as a lecturer in one of the videos. Two presenters, Syd Ball and Carolyn Krause, are FORNL board members.



The speakers included Richard Weinberg, son of Alvin Weinberg; D. Ray Smith, historian for the city of Oak Ridge; Bonnie Carroll, founder and chief data officer of Information International Associates; Pat Postma, a friend of Weinberg and ORNL; Syd Ball, expert on molten salt reactors (which Weinberg promoted), and Carolyn Krause, former science writer for *The Oak Ridger* and former editor of the *ORNL Review* research magazine. Gregg Marland, a geologist, climate expert, and former ORNL employee who initially worked with Weinberg at the Institute for Energy Analysis that Weinberg founded and headed, appeared on video in his faculty office at Appalachian State University in Boone, N.C. Smith provided a demonstration of the new online database of Weinberg's papers. Guidance was given on how to search for and access archived papers of interest. The link to the database is <http://bit.ly/digitalweinberg>. (The link to the event is <https://www.oakridger.com/story/news/2021/04/19/virtual-talks-weinberg-his-archived-papers-tonight/7292895002/>)

A second community event open to the public that was sponsored by Friends of ORNL was the 24th Annual Dick Smyser Community Lecture, which was held on June 23, 2021, at 7:00 p.m. on Zoom.

Professor Krishna Niyogi, Department of Plant and Microbial Biology at the University of California at Berkeley and a Faculty Scientist in the Molecular Biophysics and Integrated Bioimaging Division at the Department of Energy's Lawrence Berkeley National Laboratory, gave a virtual talk entitled *Understanding photosynthesis to improve crop productivity*. Kris Niyogi is a 1982 Oak Ridge High School graduate who was elected to the National Academy of Sciences in 2016. He is the son of the late Salil Niyogi and Audrey Stevens, both scientists in ORNL's old Biology Division. His mother was elected to the National Academy of Sciences in 1998 for independently demonstrating the synthesis of RNA in *E. coli* bacterial cells by an enzyme called RNA polymerase. This lecture led to two *Oak Ridger* articles;



(<https://www.oakridger.com/story/news/2021/06/18/oak-ridge-krishna-niyogi-national-academy-science-smyser-lecture/7658829002/> and <https://www.oakridger.com/story/news/2021/07/25/orhs-grads-research-might-boost-food-production/8073606002/>)

The Dick Smyser Community Lecture Series offers free lectures on a wide range of topics of interest to the local community. Dick Smyser, now deceased, was founding editor of *The Oak Ridger* newspaper, president of the Associated Press Managing Editors Association from 1973 to 1974, president of the American Society of Newspaper Editors from 1984 to 1985, and a community leader for many years. He also had a strong love of science.

Carolyn Krause continued to write and disseminate announcement articles for our monthly and community lectures and write news articles on the lectures that were published in *The Oak Ridger*. The articles summarized outstanding research at ORNL and other institutions for the public. FORNL is very grateful for her continuing generous contributions.

FORNL supported the Manhattan Project National Historical Park (MPNHP) by encouraging our members to volunteer in their numerous activities. The MPNHP focus is on "scientific and technological advances made during the Manhattan Project in the pursuit of nuclear weapons that contributed to progress in many areas, such as materials science, biology, nuclear medicine, nuclear energy, the nuclear Navy, supercomputing, precision machining, astronomy, and the Department of Energy's National Laboratory System." The diverse background and historical knowledge of our members continues to assist the MPNHP in all of these areas, allowing local Park Service employees to gather relics, educate guests, improve displays, and accomplish their mission.

FORNL members continued to volunteer their time at AMSE. Their greeting of and interaction with visitors enhance museum guest experiences. Our members look forward to a return to more normal conditions so we can (1) both help guide walking tours at ORNL for school and other interested parties and the Oak Ridge bus tours operated by DOE that originate from AMSE, and (2) receive ORNL visitor badges so that FORNL members can gain access to ORNL and attend its excellent in-house seminars and Distinguished Lectures.

In 2021, FORNL transitioned to an updated and informative website (www.fornl.org) to keep members apprised of upcoming events and to share scientific and technical news released by ORNL. We particularly appreciate James Rome's significant contribution to this transition and the website's ongoing maintenance. The website now provides a convenient link to recorded lectures that are uploaded to the new "Friends of ORNL" YouTube channel. *Treasures From the Archives* (ORNL historical articles) and numerous expanded information about FORNL and its operations are also posted.

FORNL also initiated a presence on Facebook to better broadcast our organization's offerings, particularly the monthly and community lectures that are open to the public. Ellen Smith generated announcements and managed the page.

The FORNL board upgraded two notable business practices in 2021:

- We established a permanent physical address using the services at the Oak Ridge UPS Center (1143 Oak Ridge Turnpike, Suite 107A, Oak Ridge, TN 37830). The UPS Center notifies the board when mail is received.
- We were able to renew our status as a nonprofit organization with the State of Tennessee Secretary of State's office. Status renewal now requires the permanent physical address that we initiated.

In 2021, FORNL's paid membership was 86, including 53 life members. We expect the annual paid membership to increase to pre-COVID levels of more than 100 after in-person meetings restart. FORNL membership is open to retirees from ORNL and the interested public. There are more than 250 people having an interest in ORNL and its welfare who have registered to receive our email announcements. Many community members attend the Luncheon Lecture series, and some participate in our brief pre-lecture social time and business meeting that promotes important community activities.

In a normal year, FORNL participates in the annual ORNL Benefits and Wellness Fair by providing a representative and a display to distribute information about FORNL to employees. In the past the fair helped to attract new FORNL members. Since the fair did not occur in 2021, FORNL initiated activities to better communicate with current and future retirees from ORNL. FORNL hopes to return to the Benefits and Wellness Fair and interact personally with ORNL employees again in 2022.

FORNL is particularly appreciative of Wade Creswell's work at ORNL to improve communications. Wade updated us on the COVID situation at ORNL, including ORNL rules, hiring and employment levels, and the changing percentages of employees who were working on site and remotely from home. He also affirmed that the Human Resources Division no longer issues retirement packets to retirees that once included information on activities for ORNL retirees such as classes hosted by the Oak Ridge Institute for Continued Learning or monthly and community lectures presented by Friends of ORNL.

FORNL is supported by financial contributions from UT-Battelle, annual member dues of \$20 and lifetime membership dues of \$200, as well as charitable gifts in that order. FORNL also receives much smaller, matched donations from corporations (such as Apple Computer) that use Benevity Causes as a platform for employee giving. We are grateful to the East Tennessee Economic Council (ETEC) that has allowed us to hold lectures in rooms 173 A and B of the University of Tennessee Resource Center at 1201 Oak Ridge Turnpike at no cost to us in the past. We look forward to returning to this venue in the future. In-kind contributions from *The Oak Ridger* were also very significant. Before the COVID lockdown in March 2020, the Soup Kitchen catered lunch and community lectures with special low-cost pricing for many years. We hope in-person lunches and community lectures can resume after our city returns to a new normal, hopefully in 2022.

FORNL promises to use our income to support activities that benefit Oak Ridge area communities and STEM student activities in its mission statement. In 2021, FORNL continued its \$1500 financial support for the annual Tennessee Science Bowl managed by the Oak Ridge Institute for Science and Education (ORISE). We were able to increase our support for the Southern Appalachian Science and Engineering Fair hosted by the University of Tennessee from \$500 to \$1500. We continue to encourage our members to volunteer in these STEM events. This year we formed a committee to consider new ways of increasing and formalizing our financial and in-person outreach to these and other science and engineering events. We want to support more student STEM activities in area schools during 2022.

FORNL members greatly appreciate the continued financial support from UT-Battelle. Without it, we could not continue robust execution of our mission and the expanding support of STEM activities noted above. During a normal year we acknowledge UT-Battelle as the sponsor of the Community Lecture Series in programs and announcements. FORNL's financial responsibility is maintained continually by fastidious financial accounting and annual corporate registration with both the State of Tennessee and the IRS as a 501(c)(3) nonprofit, charitable organization.

**2021 FORNL Luncheon Zoom Lectures
Speakers and Topics**

- January** *Plans, Visions, and Opening Plans for the AMSE*
Alan Lowe, Director of the American Museum of Science and Energy
- February** *Synthesis of Nuclear and Aerospace Engineering Projects at ORNL*
Mike Smith, Nuclear Space Science at ORNL
- March** *Water on Mars, Findings of the Recent Mars Lander, the Helicopter Ingenuity*
Professor Linda Kah, Planetary Geologist at UTK
- April** *Isaac Newton and Edmund Halley (a play)*
Professor Mark Littman, Science Journalist at UTK
- May** *Climatic and Humanitarian Impacts of Nuclear War: Even a Pakistan-India Nuclear War Could Produce a Global Catastrophe*
Professor Alan Robock, Rutgers University
- June** *ORNL Manufacturing Demonstration Facility: Driving a Manufacturing Innovation Ecosystem*
Craig Blue, Advanced Manufacturing Program Manager, ORNL
- July** *Why Nuclear, Why Now?*
Andrew Worrall, Nuclear Energy and Fuel Cycle Division of ORNL
- August** *Solid-State Lithium and Lithium-Ion Batteries*
John Bates, retired from ORNL
- September** *How Did the Big Bang Create Matter?*
Vince Cianciola, Physics Division, ORNL
- October** *Molten Salt Reactors: New Initiatives and New Directions*
Charles Forsberg, MIT
- November** *ORNL's Technology Commercialization Successes*
Michael J. Paulus, Director of Technology Transfer, ORNL
- December** No meeting in December

FORNL Officers March 2020 – March 2021

President	John Gunning
Vice President	Ellen Smith
Secretary	Dave Mullins
Treasurer	Chuck Coutant

Board of Directors

Syd Ball	John Gunning
Bob Compton	David Mullins
Chuck Coutant	Fred Peretz
David Fields	Ellen Smith
Carolyn Krause	Janet Swift

Adjunct Board Members

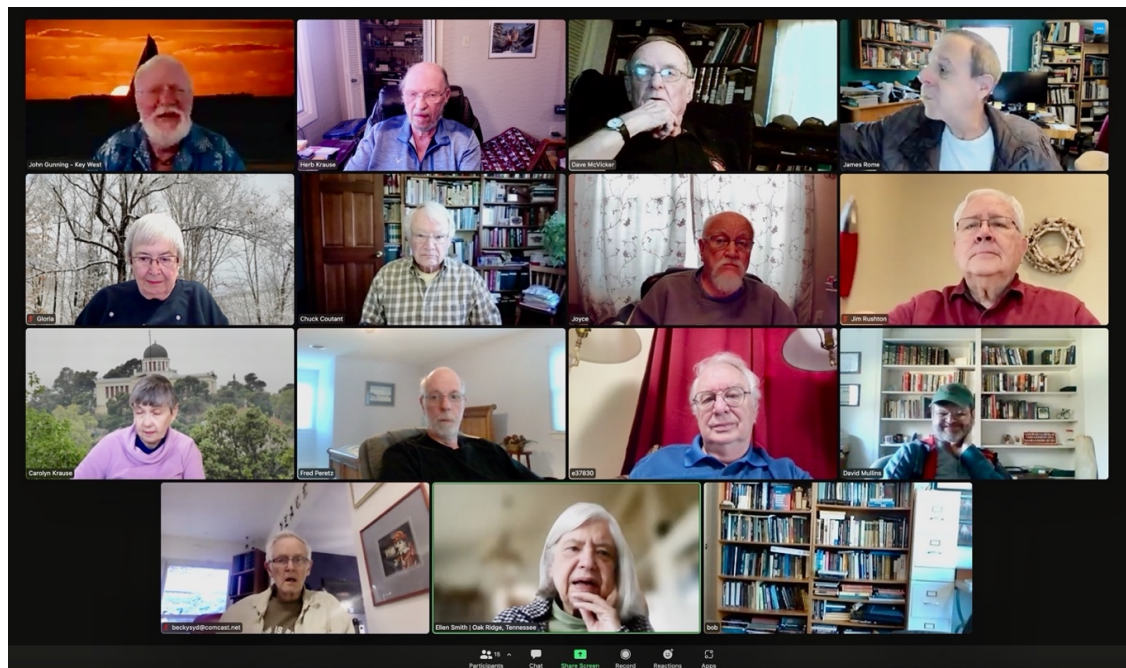
Robert Hightower Jr.	James Rome
Dave McVicker	James Rushton
Connor Matthews	Kent Williams

ORNL Liaison

Wade Creswell	Katy Brown
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Webmaster

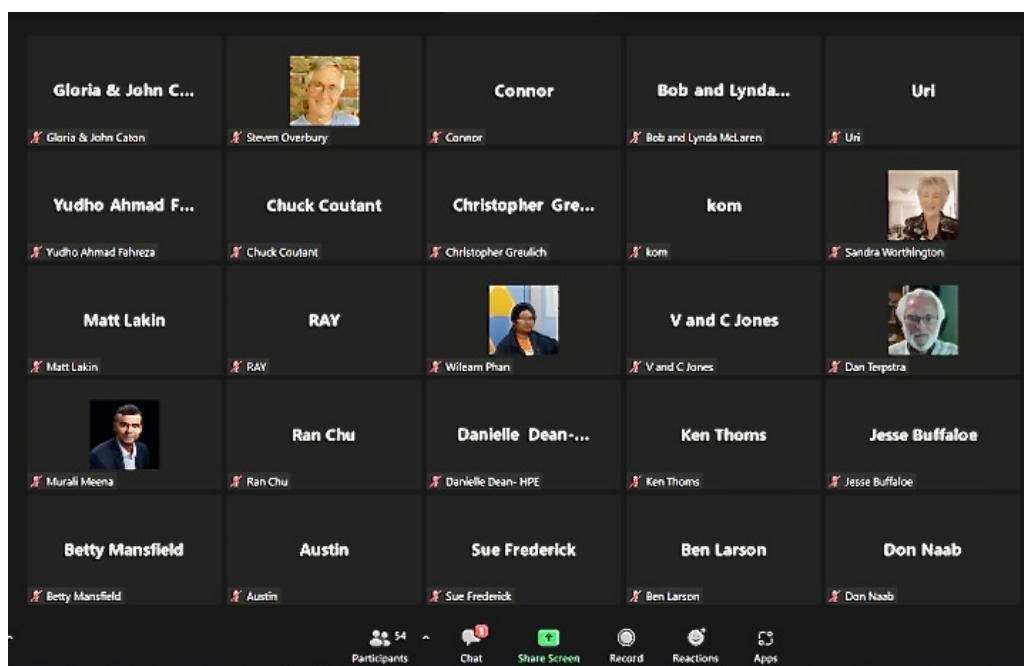
James Rome

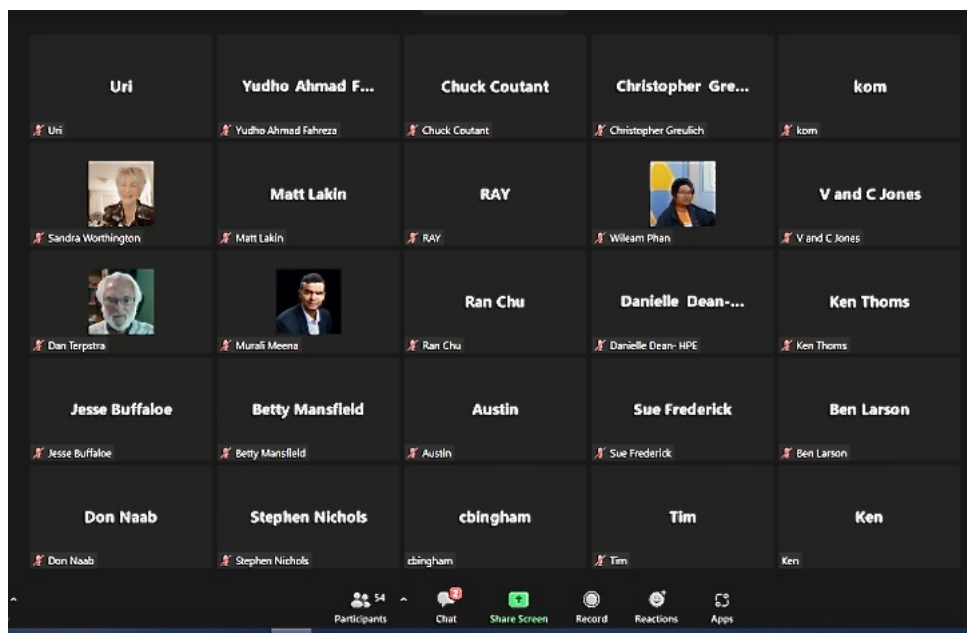


Screen shot of a Board of Directors Zoom meeting

Zoom Meeting Visualization

The following screen shots were recorded during the last FORNL noon lecture of the 2021 year. They illustrate the conversational portion of the meeting before the lecture begins and show the significant number of people attending our meetings during a time of COVID isolation. This meeting had 75 participants, which exceeded the average attendance when in-person meetings were held.





IN MEMORIAM

FORNL members & recent speakers who recently passed are:

Dub Shults 1/3/21

David Mason 1/4/21

Jerry Olsen 1/5/21

C.W. Nestor, Jr. 1/11/21

Fred Sloop 1/20/21

Harold Schmitt 2/11/21

Stephen Stow 6/30/21

Robert Clausing 7/13/21

This annual report is dedicated to the memory of the late Stephen Stow, who originated the idea of the FORNL annual report. Steve served on the FORNL board and in officer positions for decades and helped guide us from our beginning. Steve will be long remembered because he helped preserve Manhattan Project history by collecting early documents for the **ORNL History Room** and by conducting recorded interviews with many early Oak Ridge National Lab managers, scientists, and engineers. **These interviews, which can be viewed on the website of the Center for Oak Ridge Oral History (COROH) of the Oak Ridge Public Library, were the basis for numerous "Historically Speaking" columns in *The Oak Ridger*.**