



**2022
Annual Report
Friends of Oak Ridge National Laboratory
March 2023**

The officers and board of directors of the Friends of Oak Ridge National Laboratory are pleased to report on the activities of FORNL for 2022. The mission of FORNL is to provide:

- A mechanism for members to keep in touch with co-workers, retirees, and current ORNL activities,
- Knowledgeable volunteers for ORNL on-site tours and related activities at the American Museum of Science and Energy, K-25 History Center, and Manhattan Project National Historical Park located at the Children's Museum of Oak Ridge,
- Community-wide presentations and events for the public that showcase ORNL's outstanding scientific and technological achievements and awards, as well as special scientific and technological topics of national interest,
- Online and printed newspaper publicity on upcoming ORNL talks to FORNL and coverage of the talks of public interest, and
- STEM outreach, advice, and financial support to area students.

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.

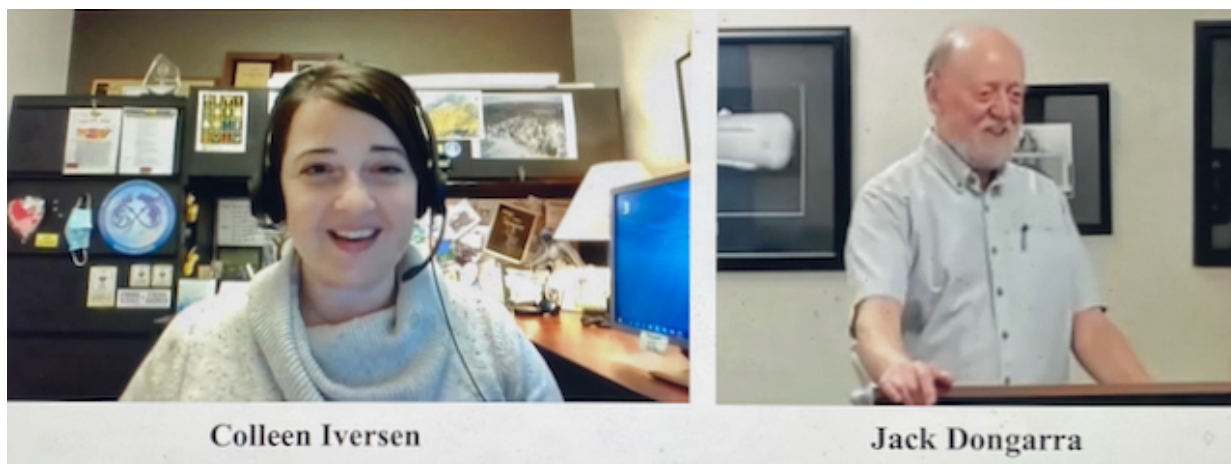
Throughout the COVID lockdown starting on March 15, 2020, FORNL was able to continue its primary activity of hosting the monthly Luncheon Lecture meetings held at noon on the second Tuesday of each month by transitioning to a pure virtual meeting format hosted by Zoom.com. The first ZOOM-only meeting and talk occurred in April 2020. The 2022 innovation was the transition from pure virtual Zoom lecture meetings to hybrid meetings (in-house and Zoom guests) in May after the UT Resources Center in downtown Oak Ridge reopened. All virtual meetings have been highly successful for more than two years. The pure and hybrid Zoom meetings frequently attracted up to 70 attendees, a participation level equal to or greater than the in-person meetings held before the COVID lockdown. As the need for in-house masking diminished during the May to December 2022 period, our live attendance increased gradually to at least 35% of all meeting guests, as shown below.



The UT Resource Center (combined rooms 173 A and B), our meeting venue before the COVID shutdown, is an ideal location for holding hybrid Zoom meetings. To record and share videos of the FORNL lectures at the highest quality, we purchased a Logitech Brio Stream HDR 4K webcam, which has built-in stereo dual omni-directional microphones. The camera is easy to use, provides a smooth frame rate, has adjustable electronic focus and sound levels, and demonstrates excellent audio pickup range throughout the meeting room. The camera, which is positioned to display the speaker during meetings, is powered through a USB connection to a MacIntosh Pro laptop logged into a Zoom Pro account on the internet. Logitech G Hub software installed on the computer controls camera parameters. Computer output feeds the room's video and audio systems through an HDMI cable. The high-quality Epson projector installed in the room projects the speaker and PowerPoint images seen by Zoom attendees onto a 10-foot-wide screen for the live audience. Amplified computer audio feeds speakers installed throughout the room.

We were unable to also restart the pre-COVID lunchtime option that had allowed attendees to purchase lunch with varied menu choices served by the Soup Kitchen staff. Unfortunately, the Soup Kitchen cannot continue the service because they are short of the staff and equipment required for this amenity. Also, the attendance at the hybrid lectures was too small and unpredictable to consider other lunch options now. Presently, in-house guests can bring and consume their lunch, but few people have done so.

FORNL had outstanding Luncheon Lecture speakers this year. We highlighted ORNL's core competencies by hosting eleven monthly public science and technology lectures that were delivered by seven distinguished speakers on ORNL's current staff and three outstanding former ORNL staff researchers. For example, Dr. Colleen Iversen, Distinguished Staff Scientist in the Environmental Sciences Division of Oak Ridge National Laboratory, explained how *Ecosystem Responses to Climate Change Depend on the Hidden World Beneath Our Feet* in an April virtual-only lecture that received coverage in *The Oak Ridger* on Earth Day, and Dr. Jack Dongarra, the most-recent winner of the prestigious Turing Award and Distinguished Professor of Computer Science in the Electrical Engineering and Computer Science Department at the University of Tennessee at Knoxville, Oak Ridge National Laboratory, and University of Manchester, presented an *Overview of High-Performance Computing and Future Requirements* during a hybrid meeting held at the UT Resources Center in June. These and other talks were highly attended.



A complete listing of the 2022 topics and speakers is displayed on page 9. Each of these recorded lectures was uploaded to and later viewed an average of 68 times (30-190 views) on the "Friends of ORNL" YouTube channel. Lecture videos are available for public viewing by clicking on "Past Talks" found near the upper left area of the www.fornl.org homepage.

We applaud the diligence of board members Ellen Smith, Robert Compton, and Carolyn Krause, who serve on FORNL's Lecture Program Committee that researches and selects the speakers. Vice President Ellen Smith was most helpful in chairing the lecture committee, introducing speakers, and co-hosting the orderly hybrid meetings. David Fields also helped. Morgan L. McCorkle, ORNL Science and Technology Media Manager, also assisted in obtaining several luncheon speakers in 2022. The FORNL board also recognizes the efforts of Bill Cabage at ORNL, who includes FORNL lecture information in announcements displayed on ORNL's internal news web page.

Carolyn Krause continued to write and disseminate announcement articles on our lectures and write feature articles about them for *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. Links to newspaper announcements and talk videos can be found by searching for a topic title and speaker found on page 9 using any internet browser. A speaker-link listing for Carolyn's 2022 feature articles published in *The Oak Ridger* appears on page 10. She also updates the "ORNL News" section of the www.fornl.org website with a condensed version of and links to the latest news releases in the "News" section of the www.ornl.gov website. FORNL continued a presence on Facebook to better disseminate our organization's offerings, particularly the monthly and future community lectures that are open to the public. Ellen Smith posted announcements and managed the page, which highlights our presence in the community.

Inherent opportunities offered by a hybrid meeting and meeting observations suggest that our in-person attendance may never overwhelm the internet attendance at our hybrid meetings. The hybrid format restores 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. Also, speakers can make a presentation in person or virtually. The virtual attendance option is now allowing members and guests who don't live in the Knoxville area or have a physical disability to attend our meetings. FORNL members who have moved from our area, as well as other people in the country who are interested in ORNL research, can and regularly attend our lectures virtually for the first time. Talented speakers from around the country or world can now present talks without the expense of traveling to Oak Ridge.

Distancing required during the COVID lockdown in 2022 did not allow us to return to FORNL's traditional in-person community lectures with served refreshments that were held before 2020, but we are planning to restart these in-person lectures in 2023. This Dick Smyser Community Lecture Series, which will be in its 24th year, offers free lectures on a wide range of topics of interest to the local community. The late Dick Smyser 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 and news about ORNL research. This fall, the board invited ORNL Director Thomas Zacharia to speak at a community lecture before his retirement in December, but the lecture could not be arranged.

FORNL members continued to volunteer their time as docents at the American Museum of Science and Energy (AMSE) and as guides for the DOE bus tours that originate at AMSE. Their greeting of and interaction with visitors enhance museum guest experiences. As the area COVID infection rate dropped in mid-2022, the DOE daily public bus tours resumed on July 11. Tours in the fall (reduced to three days/week) stopped for the winter on November 17. To afford some visitor protection, the bus capacity was limited to about 50% (17 visitors instead of 32). There was a COVID vaccination requirement in addition to other rules for participants, but volunteer guides were not asked to enforce masking rules. These three-hour tours costing \$15 (or a lower price for some visitor categories), which could be reserved on the AMSE website, visited historically important areas at the X-10, Y-12, and K-25 sites and museums. Tour participation was close to fully subscribed during 2022. The DOE tours are expected to return to a pre-COVID March-November schedule in 2023. Board members Janet Swift, Al Ekkebus, and Fred Peretz kept the board informed about ORNL and DOE bus tours, volunteer needs, and other museum activities.

Now that the ORNL campus is reopening to outside visitors, lab management expressed a need for volunteers to help with walking tours at ORNL for schools and other interested parties. In response, the board's Outreach Committee, chaired by Fred Peretz, successfully recruited several FORNL members to help with these tours. Our volunteers enjoy interacting with students and members of the public who take the tours.

Several FORNL members also served as greeters and knowledgeable docents at the new K-25 History Center and the Manhattan Project Visitor Center located at the Children's Museum of Oak Ridge. The FORNL board continues to ask our members to volunteer at these museums, at ORNL, and in the DOE bus tours because each location is short on volunteers following the long two-year COVID pause. Board members Fred Peretz and Bob Compton were particularly helpful promoting these outreach activities.

FORNL participated in the annual ORNL Benefits and Wellness Fair in October 2022 by providing two representatives, Syd Ball and Gloria Caton, who presented and electronically displayed information about FORNL to employees, including replaying online FORNL lectures. The fair, which was not held during the COVID shutdown, allows us to interact personally with ORNL employees and attract new FORNL members considering retirement.

The FORNL board recognizes Katy Brown at ORNL who helps us communicate with ORNL's management and learn their needs. We have learned that ORNL plans to resume the *Eugene P. Wigner Distinguished Lecture Series in Science, Technology, and Policy* that promotes dialogue among Oak Ridge researchers and renowned leaders in science, industry, and government. The invited lecturers bring distinct perspectives to the lab's community of scientists and engineers, whose scientific discoveries and technological breakthroughs target some of the world's most pressing problems. Many of our members have enjoyed attending these and other live onsite lectures in the past using the annual ORNL guest

badges issued to paid FORNL members who want one. Many FORNL members hope that ORNL will resume issuing guest badges to our members as the ORNL campus gradually opens to the public. We also learned that the retirement packets that the Human Resources Division issues to retirees no longer include information about activities for ORNL retirees such as classes hosted by the Oak Ridge Institute for Continued Learning, information about Friends of ORNL, etc. The FORNL board believes that these packets were beneficial to retirees and FORNL in the past.

FORNL started holding Zoom board meetings during the COVID lockdown and for convenience we continue to meet remotely after COVID restrictions were lifted in 2022. The diligent efforts of Treasurer and Membership Committee Chair David Mullins, Secretary Fred Peretz, and Kent Williams kept all FORNL business records and annually required legal documents up to date.



Screen shot of a typical Board of Directors Zoom meeting

**Fred Peretz, Herb Krause, Bob Compton; David Mullins, Kent Williams, Janet Swift;
James Rome, Ellen Smith, Syd Ball; David Fields, and Carolyn Krause
(Left to right and top to bottom)**

In annual business, we thank the 2023 Nominating Committee that was skillfully run by Janet Swift with the help of board members Al Ekkebus and Bob Compton and non-board members Don Miller and Nick Packan. They recommended re-election of Syd Ball, David Fields, Carolyn Krause, and Fred Peretz to serve a second two-year term. They also recommended two new candidates: Steve Overbury, to serve a two-year term to replace Janet Swift, and Ray Garrett to serve one year of Bob Compton's incomplete two-year term. Bob will stay on the board as an adjunct member. FORNL members will be asked to approve this slate at the FORNL annual meeting on February 14, 2023. The board thanks Janet Swift and Bob Compton for their four-and five-years of elected board service.

During 2021, FORNL transitioned to an updated and informative website (www.fornl.org) to keep members apprised of upcoming events and of scientific and technical news released by ORNL, as well as to easily allow visitors to access virtually the lectures presented at our meetings. Jim Rome's continuing diligent maintenance of the website's secure internet infrastructure that has expanded capabilities now allows board members to easily update the site's information contents. A popular selection on the site is the list of recorded lectures found under "Past Talks." The viewer can read the talk abstract and the speaker's biographical sketch by clicking on the talk title and/or be linked to the talk that was uploaded to the "Friends of ORNL" YouTube channel. Lectures since May 2021 are available. The website also provides convenient links to "ORNL News," *Treasures from the Archives* (ORNL historical articles) and expanded information about FORNL and its operations. Our website is also a gateway to FORNL email capabilities provided by MailChimp and the member email list is managed by software on fornl.org.

In 2022, FORNL's paid membership was 86, including 53 life members. We expect the annual paid membership to increase to pre-COVID levels of over 100 now that in-person hybrid meetings have restarted. FORNL membership is open to anyone, including retirees from ORNL and the interested public. More than 250 people who are interested in ORNL and its welfare have registered to receive our email announcements and follow Friends of ORNL on Facebook. 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 outreach activities.

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) for continuing to allow us to hold monthly lunch lectures at no cost at the University of Tennessee Resource Center at 1201 Oak Ridge Turnpike; we returned to this newly renovated room with high-tech amenities in May 2022. We also appreciate the significant in-kind contributions of *The Oak Ridger* in publishing announcements and the coverage of FORNL lectures written by Carolyn Krause. Before the COVID lockdown in March 2020, the Soup Kitchen catered lunch and community lectures with special low-cost pricing for many years. Perhaps the food service at our lectures can be restored in the future.

We continue to use our income to support STEM student activities in addition to other Oak Ridge area activities discussed throughout this report. For example, FORNL provided \$1500 to support the annual Tennessee Science Bowl managed by the Oak Ridge Institute for Science and Education (ORISE). We were able to support the Southern Appalachian Science and Engineering Fair (SASEF) hosted by the University of Tennessee at the \$1500 level, too. Several FORNL members participated in SASEF's monthly "Virtual Science Club," a forum that educates teachers, mentors, and middle school and high school students on scientific topics. Fred Peretz and other board members continue to encourage our members to volunteer in these STEM outreach events and the FORNL board is always searching for new service opportunities.

Overall, FORNL's missions (stated on page 1) continued to contribute strongly to ORNL's stated Corporate Giving areas in the Public Tours and Educational Support categories (defined in www.ornl.gov/community) during 2022 and FORNL members greatly appreciate the continued financial support from UT-Battelle. Without it, we could not continue robust execution of our missions and the expanding support of STEM activities noted above. During the year we acknowledge UT-Battelle as the sponsor of the Community Lecture Series in programs, on our website, and in 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.

2022 FORNL Luncheon Zoom Lectures (* indicates a hybrid lecture)

Speakers and Topics

- January** *An Electrified U.S. Infrastructure Ecosystem – Opportunities and Challenges*
Richard Raines, Electrification and Energy Infrastructures Div., ORNL
- February** *Future Applications in Regenerative Medicine*
Cymbeline Culiati, NellOne, formerly an ORNL scientist
- March** *Computational Science at the Dawn of the Exascale Era*
Bronson Messer, ORNL, Oak Ridge Leadership Computing Facility
- April** *Ecosystem Responses to Climate Change Depend on the Hidden World Beneath our feet*
Colleen M. Iversen, ORNL Climate Change Science Institute and
Environmental Sciences Division
- May** *The Power of Information: An Early ORNL Spinoff Company and
the Development of the New World of Open Science and Open Data (IIa)**
Bonnie C. Carroll, founder and retired CEO of Information International
Associates, Inc. (IIa) (Hybrid)
- June** *High Performance Computing: Where We Are Today and A Look into the Future**
Jack Dongarra, UTK, ORNL, and University of Manchester
- July** *TVA River Management Overview**
Benjamin Heath, Tennessee Valley Authority, Knoxville, TN
- August** *Mass Spectrometry at ORNL*
Gary van Berkel, Van Berkel Ventures, LLC,
Formerly of the ORNL Chemical Science Division,
- September** *No Charge, Tremendous Value: How Neutrons Probe Hidden Behaviors of Matter**
Hans M. Christen, ORNL Neutron Scattering Division, Director
- October** *East Poplar Creek Mercury – Past and Present Activities**
Scott Brooks, ORNL Environmental Sciences Division
- November** *Heating Experiments in the Electron Microscope;
A 60-year ORNL Retrospective**
Lawrence F. Allard, ORNL Materials Science & Technology Division
- December** *No meeting in December*

**2022 Links to Feature Articles published in *The Oak Ridger*
for each FORNL Speaker**

Richard Raines

<https://www.oakridger.com/story/news/2022/01/25/ornl-targets-electric-grid-security-ev-battery-charging/6569466001/>

Bem Culiati

<https://www.oakridger.com/story/news/2022/03/15/local-company-strives-fill-gap-treating-covid-19-sufferers/7000975001/>

Bronson Messer

<https://www.oakridger.com/story/news/2022/04/04/scientific-successes-summit-supercomputer/7231173001/>

Colleen Iversen

<https://www.oakridger.com/story/news/2022/04/22/rooting-out-whether-soil-store-release-carbon-during-warming/7370503001/>

Bonnie Carroll

https://www.oakridger.com/story/lifestyle/2022/08/19/bonnie-carroll-librarian-successful-entrepreneur/10332734002/?fbclid=IwAR0wENIGuzaZe2TCIQqzyf35mEgtXesAjWnlrIVhsWZfAqBl_Wvqj8Y7Zo

<https://www.oakridger.com/story/news/2022/08/26/local-entrepreneur-experienced-rapid-advances-info-business/7884541001/>

Jack Dongarra

<https://www.oakridger.com/story/news/2022/06/30/why-u-s-science-needs-costly-supercomputers/7722346001/>

Benjamin Heath, TVA

<https://www.oakridger.com/story/news/2022/08/09/tva-dams-providing-clean-power-reducing-flood-damage/10126111002/>

Gary van Berkel

<https://www.oakridger.com/story/lifestyle/2022/09/02/oak-ridgers-inventions-deployed-worldwide/7903818001/>

Hans Christen

<https://www.oakridger.com/story/news/2022/09/30/from-drugs-to-cell-phones-oak-ridge-neutrons-worldwide-impact/69520373007/>

Scott Brooks

<https://www.oakridger.com/story/news/2022/11/09/pondering-remedial-actions-for-mercury-in-oak-ridge-creek/69613779007/>

FORNL Officers March 2022 – March 2023

President	Herbert Krause
Vice-President	Ellen Smith
Secretary	David Mullins
Treasurer	Fred Peretz

Board of Directors

Syd Ball	Herbert Krause
Bob Compton	David Mullins
Al Ekkebus	Fred Peretz
David Fields	Ellen Smith
Carolyn Krause	Janet Swift

Adjunct Board Members

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

ORNL Liaison - Katy Brown

Webmaster - James Rome

FORNL Members Who Will Be Missed

Robert Ferguson 1/23/22
Elizabeth Peelle 4/6/22
Thomas H. Row 4/14/22

For the FORNL Board,

Herbert F. Krause, FORNL President

