ANNUAL REPORT

2022

Celebrating LLF's new office at the UC Livermore Collaboration Center in September 2022.
Pictured left to right: LLF Board Secretary Greg Suski, LLF Board Chair Dona Crawford, LLNL
Director Kim Budil, LLF Director & UCOP Chief of Staff Brett Henrikson

Livermore Lab FOUNDATION

Letter from the Executive Director

Growing Our Impact Together

Sally Allen, Executive Director

It was a remarkable year for the Livermore Lab Foundation in 2022, from helping Lawrence Livermore National Lab (LLNL) celebrate 70 years of 'making the impossible possible,' to sponsoring a record number of student fellows. We are honored to play a growing role in advancing extraordinary science, accelerating innovation, and inspiring future STEM leaders in partnership with the Lab.

The Foundation embraces LLNL's multidisciplinary, team approach to tackling the world's biggest science and technology challenges. Increasingly complex problems in energy, climate, and healthcare require creative approaches and partnerships. LLF is a critical enabler of new collaborations that can leverage LLNL's unique expertise for impact beyond its core national security mission. Connecting new people, places, and partners with the Lab's tools, expertise and capabilities helps translate Livermore's innovation into real impact.

In the year ahead, we're working with educators across California to expand our Climate in the Classroom program, advancing critical community conversations about our energy future. We're broadening our neurodegenerative disease research efforts with international collaborators and dedicated student projects. A new partnership with the Society for Industrial and Applied Mathematics (SIAM) will bring two more fellows to our growing STEM community. And our presence at the new UC Livermore Collaboration Center (formerly Hertz Hall) is positioning us to support even more research and student opportunities.

Our work would not be possible without the contributions of our extended team - our donors, funders and volunteers who fuel our mission, our strategic partners who strengthen our capacity and extend our reach, and our Lab champions who inspire us daily with their dedication to science in the national interest. We look forward to growing our impact together in the years to come!

To commemorate LLNL's 70th anniversary, LLF installed a bench honoring all Lab directors at the UCLCC offices

Our Mission

The Livermore Lab Foundation is dedicated to advancing scientific knowledge and inspiring the next generation of science and technology leaders by leveraging philanthropic investments in world-class research, education, and innovation at Lawrence Livermore National Laboratory, a U.S. Department of Energy national security laboratory.

Our Top Five Highlights

1 Celebrated LLNL's 70th Anniversary with a historic
Lab Director Panel and community reception

2 Moved into our new home at the UC Livermore
Collaboration Center on the Lab's open campus

3 Facilitated regional climate conversations in
communities across California

4 Expanded our connections at LLNL and beyond
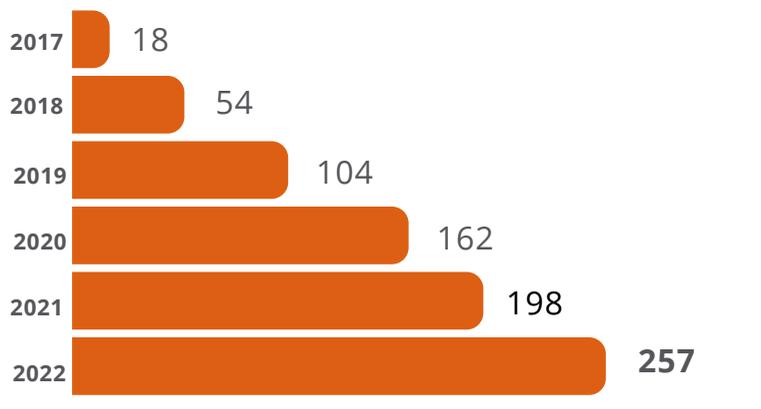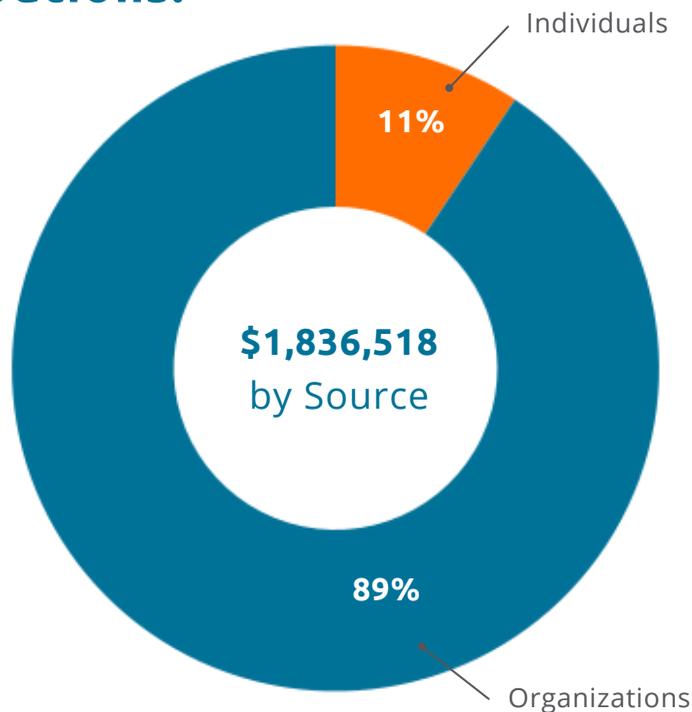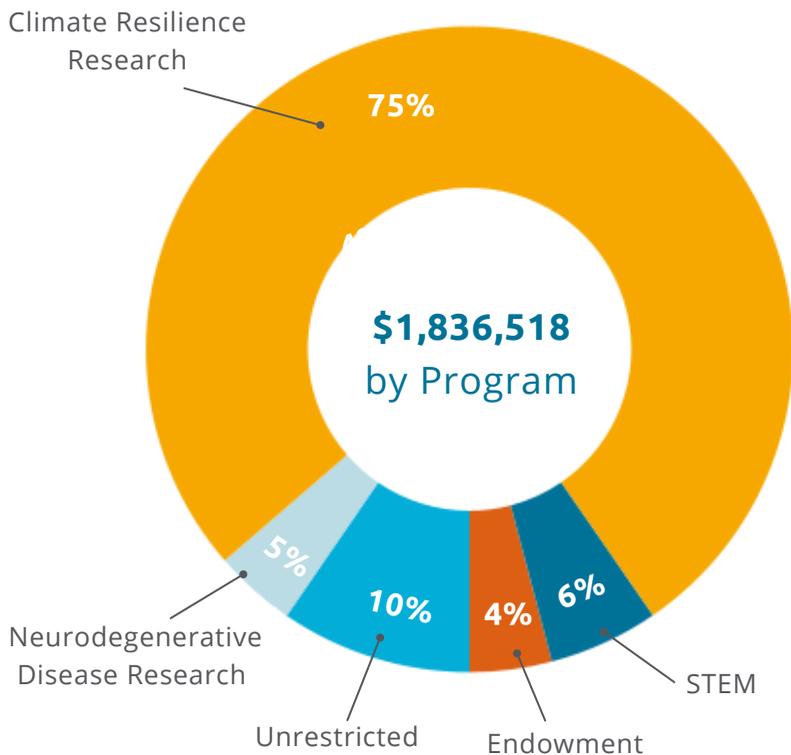
5 Encouraged aspiring scientists and engineers to
explore their interests in STEM
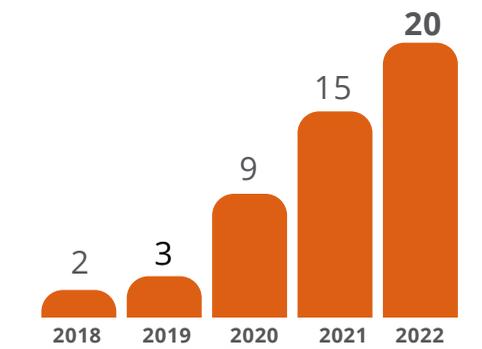
2022 By the Numbers

Total Contributions:

$1,836,518 by Program

- Climate Resilience Research — 75%
- Neurodegenerative Disease Research — 5%
- Unrestricted — 10%
- Endowment — 4%
- STEM — 6%

$1,836,518 by Source

- Individuals — 11%
- Organizations — 89%

Lifetime Donors

- 2017: 18
- 2018: 54
- 2019: 104
- 2020: 162
- 2021: 198
- 2022: 257

83% Increase in funds raised from individual donors

69% Increase in new donors

51% Increase in average individual gift size

75% Donor retention from prior year

2,796 STEM students reached since 2016

Fellowships Awarded

- 2018: 2
- 2019: 3
- 2020: 9
- 2021: 15
- 2022: 20

Connecting the Community to Lab Science

Opening the Door to the Future

In partnership with LLNL, we support STEM outreach to introduce students to the Lab's unique resources. In March 2022, we participated in the Tri-Valley Innovation Fair to showcase laboratory expertise and instill a deeper appreciation for the role that science plays in solving problems and improving lives. Learn more about our STEM programs and fellowships on our website.

Sparking Inspiration

Our Summer 2022 STEM Speaker Series highlighted Livermore's expertise and impact. Guest speakers Tom Ramos, Tammy Ma, Jay Davis, and Huban Gowadia shared their insights on LLNL science and research. More than 300 students and community members joined the conversations. You can access the entire speaker series on LLF's Youtube channel.

Creating Opportunities

Jason Van Tuinen, one of LLF's 2021-22 UC Merced Fellows, recently joined LLNL as a computer scientist in the Global Security Computing Applications Division, working with large volumes of data to train neural networks for nonproliferation tasks. He is among the first of our alumni to launch a career at the Lab following his year-long fellowship. Cultivating future STEM leaders at LLNL could not happen without our generous community of supporters!

Inspiring Future STEM Leaders

Meet Laurie Liu
Our Inaugural Kim Cupps Fellow

The Kim Cupps Memorial STEM Fellowship Fund supports a paid summer internship at LLNL to honor Kim Cupps' spirit, legacy, and passion for STEM. Kim was a long-time computational leader at the Lab and played a pivotal role in bringing several of the world's fastest and most powerful supercomputers to Livermore. She held a number of senior management positions throughout her 29-year career, and was a gifted and motivating manager, always focused on recruiting and training the next generation. Kim's wife, Gina Bonanno, is determined to pay it forward, one STEM leader at a time. "This fellowship at the Lab gives people the opportunity to experience what Kim and I had," noted Bonanno, who retired from LLNL in 2013. "The Lab is not just a job - it's a place where everyone can fit, with so many ways to contribute and feel valued," said Bonanno. "Internships are important and quite frankly, necessary, to help inspire our students."

This unique fellowship fund was established in partnership with the Pedrozzi Foundation to provide scholarship recipients an opportunity to spend one summer, in either their junior or senior year, as a LLF Fellow interning with the Lab's summer student program. Our Inaugural Kim Cupps Fellow and local Livermore graduate, Laurie Liu, shares the impact this experience had on 'opening the door' to her future in STEM:

"This fellowship has assisted me greatly in that I now have a better understanding of a career in computer science, and based on the hands-on experience I gained, the confidence

Kim Cupps (left), with son Alex and Gina Bonanno

to become a better computer scientist. One day, I hope to be a mentor for other young women who want to engage in the STEM community. It's important to me to minimize the gender gap within STEM, especially within computer science. I am very grateful to LLF, Gina Bonanno, and others who have supported me in this fellowship. I hope to return to the Lab and work on future projects that have an impact on our society and community."

2022 LLF Fellows & Interns

Phoebe Adamyan
UC Merced

Adeola Aghedo
Florida A&M University

Andre Antoine
University of Michigan

Gabriella Kephart
UC Santa Cruz

Jerry Clark
Florida A&M University

Alexis Diaz
UC Berkeley

Cristian Espinosa
UC Merced

Jhonnatan Gama Vazquez
Stanford University

Sheindel Gamerberg
UC Merced

Andrew George
The Ohio State University

Girik Jain
Purdue University

Samantha Cantu Olea
UC Irvine

Laurie Liu
UC Santa Cruz

Kaden Loring
Stanford University

Kyle Magro
UC Merced

Isabella Martinez
UC San Diego

Darren Ng
UC Merced

Daniel Tetteh
University of Oklahoma

Mercedes Vasquez
UC Berkeley

Levi Williams
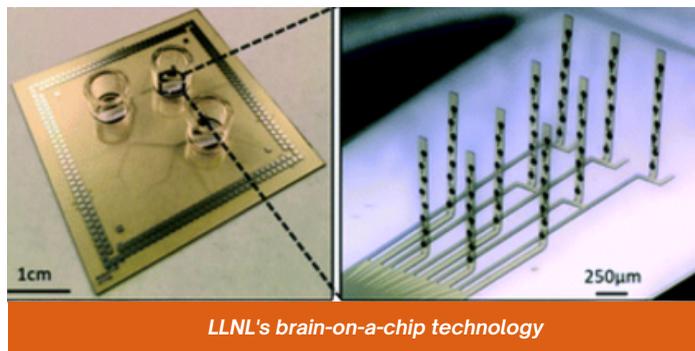*UC Merced*

Tackling Neurodegenerative Diseases

Meet Kyle Magro
Our Inaugural Life Sciences Fellow

LLF leverages LLNL's unique supercomputing, bioengineering, and biosciences core competencies to accelerate collective efforts to diagnose, understand, and treat neurodegenerative diseases like Amyotrophic Lateral Sclerosis (ALS), Alzheimer's, Multiple Sclerosis, and Parkinson's. To date, we've funded early-stage projects focused on biomarker identification, multimodal data analytics, disease and therapeutic interventions that are yielding important insights into the myriad neurological diseases affecting a growing portion of our aging population. Our portfolio of work has helped advance collective understanding in the broader research community and provided an opportunity to inspire future STEM leaders.

Kyle Magro was LLF's first Life Sciences summer student, coming to us from UC Merced where he is now a senior in the Biological Sciences Department. In Summer 2022, he was involved in two projects, working closely with his Lab mentors. The first, *Understanding the Molecular Mechanisms of ALS*, is directly linked to much of the research LLF has funded. The second project, *Characterizing the Binding Mechanisms of Novel Antibodies Against the COVID-19 Antigen*, contributed to LLNL's ongoing research and response to the COVID-19 pandemic. Kyle reflects on his experience and future plans below:

LLNL's brain-on-a-chip technology

"It was both humbling and inspiring to meet and discuss technical scientific topics with some of the brightest minds in the biological sciences. I was able to participate in projects that I am deeply passionate about, and it is incredibly refreshing to realize that the work we do makes a difference in the world. For example, with a single assay we designed, we were able to test the binding mechanics of a novel antibody that the Lab had created to be used in research to counter COVID-19."

"Overall, this fellowship was my foot in the door to a vast scientific community, and I'm grateful for the network I developed at LLNL. The entire experience inspired me to one day return to the Lab as a staff scientist to work on bioscience projects that promote national security. I am so grateful and appreciative to LLF for this opportunity."

Accelerating Climate Resilience

Carbon Cleanup Initiative
SCIENCE SERVING HUMANITY

Our Carbon Future
Community Education and Collaboration

In 2022, the Foundation continued to offer strong education and outreach programs complementing the Lab's core research initiatives in climate resilience and carbon management.

The Climate in the Classroom program, a free, immersive Next Generation Science Standards (NGSS)-aligned set of lessons based on California's goal to achieve net neutrality by 2045, was introduced to more than 1100 9th-12th grade science students in Kern, Alameda and San Joaquin counties. Pre- and post- surveys showed impressive gains among students in awareness of the carbon vernacular, neutrality goals and mitigation solutions. Educators' feedback also inspired the addition of two new units: one on green careers and the STEM workforce pipeline, and another on environmental justice considerations to help shape an equitable energy future. The updated program now offers more than 29 hours of supplemental lessons, and is underway in over 40 classrooms statewide. The lessons complement the Foundation's public outreach program known as The Carbon Cleanup Initiative. Both were made possible thanks, in part, to support from The Clean and Sustainable Energy Fund. In 2023, LLF hopes to expand the high school education program beyond California.
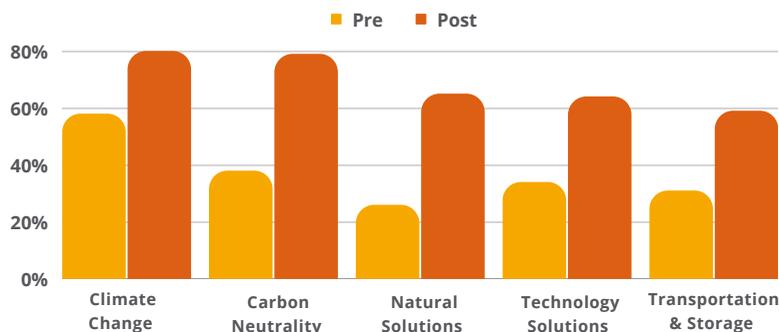
"Education is fundamental to unlocking a sustainable future," said Dr. Mary Barlow, Kern County Superintendent of Schools, one of the districts where *Climate in the Classroom* has been deployed. "By empowering students with knowledge about the impacts of climate change and career opportunities within related industry sectors, we're creating a generation of environmentally responsible citizens to help California reach its carbon neutrality goals."

Spring 2022 Student Survey: Reported Knowledge Gains in Climate and Carbon Management Topics
1100 9th-12th grade science students in Alameda, Kern & San Joaquin Counties

LLF's climate partnerships were also strengthened this year with Climate Now, a multi-media platform that explains key scientific ideas, technologies, and policies relevant to the global climate crisis, and with two important academic partners: Cal State University, Bakersfield, and the Kern Community College District.
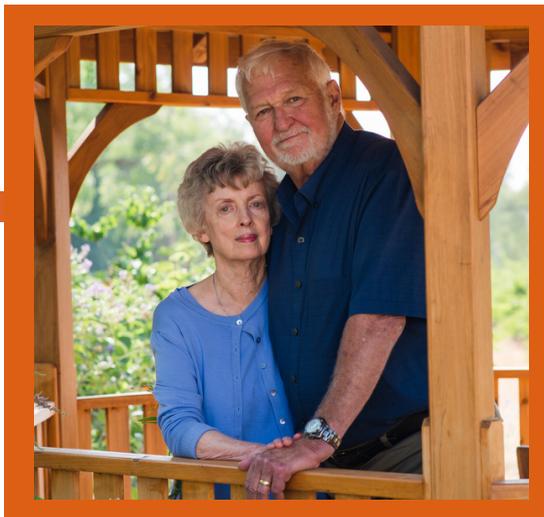
"Climate resilience is one of the most pressing issues of our generation," said Sally Allen, LLF's Executive Director. "We believe the Foundation can contribute to the community dialogue and education necessary to achieve carbon neutrality. We're working with several communities and partners who value and desire the Lab's strong scientific expertise in this area, and we're delighted to help facilitate those collaborations."

Thank You to Our Donor Community

A Gift to Inspire
Jay & Mary Davis

In 2022, long-time Livermore residents Jay and Mary Davis shared their commitment to science by establishing the Davis Family Fellowship at the Livermore Lab Foundation. The fellowship supports an aspiring college senior for a summer internship and year-long association with LLNL. **Phoebe Adamyan**, the 2022 recipient, will graduate from UC Merced in May 2023 with a degree in Bioengineering.

In his long career at Livermore, Jay held a number of senior positions in science management and national defense. He rose through the ranks to become associate director, left to become founding director of the Defense Department's Defense Threat Reduction Agency (DTRA), and then returned to LLNL as a National Security Fellow. Following his retirement from the Lab, Jay spent more than half a decade as the President of the Hertz Foundation. It was in this position, as well as subsequent tenures in local organizations like Rotary and Quest Science Center, that his love for community blossomed.

Jay shares, "We chose to support the Livermore Lab Foundation because it offers a unique opportunity for students to experience the Lab's programs, technology and R&D environment and style, and wonderful staff while early in their technical growth."

The idea of 'paying it forward' is a core value for both Jay and Mary. The Davis Family Fellowship will give that to the next generation of STEM leaders. "Identifying and cultivating the innovative mind is a remarkable opportunity," noted Jay. "Mary and I are delighted to give back to our community and the Foundation is a great way to champion science." Thank you, Mary and Jay Davis. We agree!

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Working at LLNL opened my eyes to the numerous ways data science impacts biology, and expanded my network to include my fantastic mentors. I am excited to pursue Data Science and Computational Research and to eventually develop my own research projects.

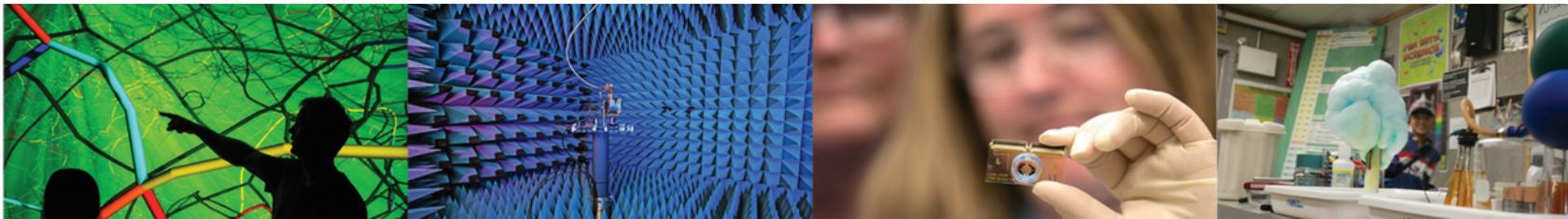**Phoebe Adamyan, 2022 Davis Family Fellow**

Investing in the Livermore Lab Foundation

Why LLF?

The power of science is realized at the intersection of the **Livermore Lab Foundation** and the world-class research and innovation at **Lawrence Livermore National Laboratory**. Your investment harnesses LLNL's science and technology on a mission — with leading-edge experimental capabilities, unparalleled tools, and ground-breaking research to address some of today's greatest challenges. At the Foundation, we enable public/private collaborations and donor and foundation gifts to advance science and research initiatives, support a diverse workforce pipeline, and leverage the Lab's expertise for the greater good.

Why Now?

Today's complex challenges require an all-hands-on-deck approach. Support the urgency of science as an everyday scientific thinker, as an admirer of science, or as a scientist yourself. Help embed the fundamentals of problem-solving, making sense of important information and being able to gather and examine evidence in *just* decision making. It's vital to society and our planet.

Join us in making an impact!

We welcome designated or unrestricted gifts of any size. Join us today in making an impact by giving online, mailing a check, using a Donor-Advised Fund (DAF), or establishing a named or legacy fund. We're happy to help you develop a giving plan that works for you. If you have questions or wish to explore unique circumstances surrounding your gift, please contact our team at *info@livermorelabfoundation.org*.

Your gift can help:
- Advance collective research into targeted therapy development for neurodegenerative diseases;
- Accelerate efforts across California and the nation to achieve ambitious carbon neutrality goals;
- Inspire future STEM leaders to pursue a career in science in the national interest; and
- Harness the power and promise of science for a better tomorrow!

Connect with us

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🖥 **livermorelabfoundation.org**

✉ **info@livermorelabfoundation.org**

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Learn more about LLF
Open your phone camera and hover over this QR Code to visit our website

LLF Leadership

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Greg Suski,
Board Secretary, Former LLNL Associate Deputy Director for Science & Technology

Emily Wu,
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Catharine Baker,
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Kim Budil,
Ex Officio Director, LLNL Director

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Brett Henrikson,
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Anantha Krishnan,
Senior Vice President, General Atomics, Former LLNL Associate Director of Engineering

Craig Leasure,
Vice President for National Laboratories, UC Office of the President

Charlene Zettel,
Regent Emerita, UC Board of Regents and Former Assemblymember (CA-75)

Our Team:

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Executive Director

Terry Damm,
Financial Controller

Susan Houghton,
Climate Portfolio Manager and Communications Consultant

Emily Pezzutti,
Development Associate

Lori Taylor,
Operations and Marketing Consultant

Gold
Transparency
2023

Candid.