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College of Engineering –
Center for Environmental
Research and Technology

We Engineer Excellence

June 2024



Dear CE-CERT friends,

As we conclude the spring quarter, we are pleased to share just a few examples of the many exciting activities at CE-CERT, as well as some of our significant achievements. This quarter, we reached several notable milestones in research and community engagement. Most significantly, CE-CERT was honored with the 2024 Leadership in Air Quality Award from the South Coast Air Quality Management District. This award is a testimonial to the enduring dedication and contributions of our team. Besides this significant



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acknowledgement, CE-CERT researchers and students were recognized for their innovative contributions to air quality and sustainability research in a number of venues. We also hosted vital safety training sessions to enhance our community's awareness and readiness.

Looking ahead, we have a full schedule of events planned, promising further opportunities for professional development and collaboration. Thanks to everyone at CE-CERT for your continued dedication and hard work. I am confident that we will maintain our momentum and achieve even greater success in the coming months.

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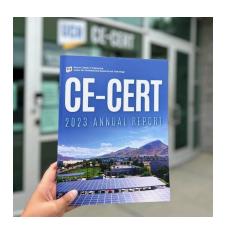
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## **CE-CERT Receives Leadership in Air Quality Award**

CE-CERT proudly accepted the Leadership in Air Quality Award at the 34th Annual Clean Air Awards, presented by the South Coast Air Quality Management District (South Coast AQMD). This award recognizes CE-CERT's three decades of contributions toward reducing pollution and improving air quality. The honor highlights our sustained commitment to environmental excellence and public health.

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### 2023 Annual Report Now Available!

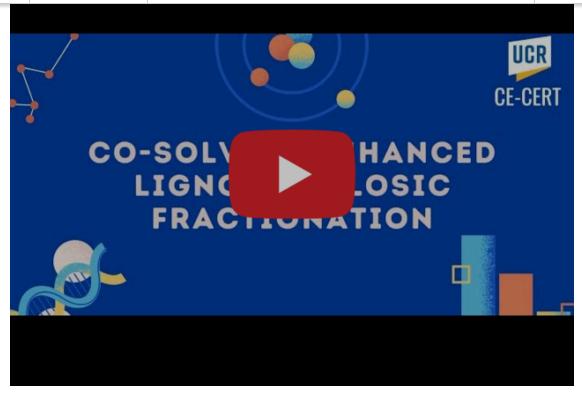
We are excited to share the remarkable progress and innovation our team achieved last year. Check out our latest report to explore the highlights of our accomplishments and see how we're advancing the frontiers of environmental research and technology.

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### Congressman Takano Visits to Recognize \$1.45M Grant

Congressman Takano visited CE-CERT to recognize Dr. Charles Cai for securing a \$1.45 million Department of Energy (DOE) grant. This grant will advance Dr. Cai's groundbreaking process of converting plant waste from wood processing, farming, and industrial hemp into clothing fabrics. The innovative method transforms biomass into dissolving pulp, which can be made into lyocell, a lightweight, moisture-wicking fabric perfect for sportswear.

#### **Read more**



## **CE-CERT's Arun Raju Testifies on Zero Carbon Hydrogen Economy**

Dr. Arun Raju, Associate Director-Operations at CE-CERT, recently testified before the State Select Committee on Building a Zero Carbon Hydrogen Economy. His insights during the panel focused on pipeline safety, leakage, and development, emphasizing the essential role of robust infrastructure in advancing hydrogen as a sustainable energy source.

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### STUDENT SPOTLIGHT



## Women's Engineering Day: Meet the Women Engineers of CE-CERT

In honor of Women's Engineering Day, we celebrate the talented women engineers of CE-CERT, highlighting their contributions and achievements. Watch the exclusive feature spotlighting graduate student, Kyah Gracia, showcasing her inspiring journey and impact within the engineering field.

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#### **Read more**



# Students Earn Honorable Mention at ITE Bob Crommelin Student Presentation Award Meeting

Students Hung Nguyen and Harvey Wang earned the Honorable Mention Award at the 2024 RSBITE Bob Crommelin Student Presentation Award Meeting for their project on C-V2X Communication Technologies. Their research, based on the EcoCAR EV Challenge, showcased innovations in vehicle communication aimed at enhancing transportation efficiency and safety.

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### RESEARCH HIGHLIGHTS



## UCR Partners with UC Davis in New USDOT Research Center

UC Riverside has partnered with UC Davis and other institutions to launch the Climate and Transportation Research Center, funded by a \$1.7 million USDOT grant. UCR will receive \$100,000 annually over five years to support research in sustainable transportation technologies. This initiative marks UCR's fifth USDOT-sponsored transportation research center, the highest number of any U.S. institution.

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### **CE-CERT Attends Stage 1B Workshop**

UCR attended the Intersection Safety Challenge Stage 1B workshop at FHWA's Turner Fairbank Highway Research Center. UCR reaffirmed its commitment to Vision Zero and transportation equity, aiming to enhance the safety of vulnerable road users (VRUs) at intersections through innovative applications of emerging technologies. This event marks a significant step in UCR's ongoing efforts to improve intersection safety and protect communities.

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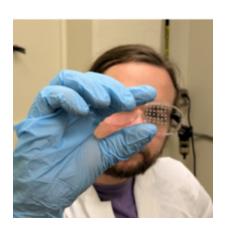
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#### Competition

The UCR EcoCAR team spent over a week in Arizona competing in Year 2 of the EcoCAR EV Challenge, bringing their designs to life after a year of development. They incorporated advanced connected and autonomous features into their vehicle, which underwent extensive technical inspections to assess safety and integration quality. The team also presented their work to sponsors and judges.

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# CE-CERT collaborates with West Texas A&M for low-temperature research

CE-CERT has teamed up with West Texas A&M
University to conduct innovative low-temperature
research that enhances predictive models for climateresponsive technology. This collaborative effort focuses
on advancing our understanding of atmospheric
processes under varying temperature conditions, critical
for developing sustainable environmental solutions.

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# CE-CERT Joins DOE's Atmospheric Radiation Measurement Facility Mentorship as Instrument Mentor

CE-CERT researchers are designing a network of modified portable optical particle spectrometers (POPS) for long-term deployment in Baltimore, Maryland. The instruments will be field-hardened in Riverside, undergoing tests across the full range of local diurnal temperatures and humidities. Undergraduate researchers Keila Sakaguchi and Chris Solares are contributing to the analysis and calibration of these instruments to better understand spatiotemporal

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# CE-CERT Faculty Meet with Medium and Heavy-Duty Zero Emission Vehicle Stakeholders in Mexico

On April 17, 2024, the Technical Advisory Committee (TAC) for the "California-Mexico Border Zero Emissions Vehicle Infrastructure Analysis for Medium-Heavy Duty Vehicles" project, funded by UC Alianza MX, met in Mexico City. Key stakeholders discussed strategic ZEV implementation, infrastructure development, regulatory alignment, technological challenges, and pilot programs. Read more



# CE-CERT Participates in the 15th International Transport Congress in Mexico City

CE-CERT's Dr. Alfredo Martinez-Morales contributed to a critical discussion on sustainable energy in public transportation. Key topics included integrating renewable energy, policy support, and the socioeconomic benefits of cleaner transit systems, emphasizing the urgent need for coordinated efforts in urban mobility.

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### **Celebrating Recent Graduates at CE-CERT!**

This quarter, we are proud to highlight the achievements of our graduate students who have successfully defended their thesis. Each of these graduates has made a unique contribution to

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**Tianbo Tang,** Air Quality from Ground Transportation, Off-Road Equipment, and Marine Vessels: Impacts of Low-Carbon Fuels and Engine/Aftertreatment Technologies

**Ryan Drover**, Bridging Traditional Understandings of Aerosol Dynamics to Real-World Maritime Emissions and Respiratory Health Delivery Methods

**Brenda Lopez Reyna**, Real World Characteristics of the Non-Tailpipe Brake Source During Near Road Environments and Onboard Sensing Activity

Samiha Binte Shahid, Improving the representation of non-methane organic gases (NMOG) inemissions inventories and gas-phase chemical mechanisms for better prediction of secondary organic aerosol (SOA)

Afsara Tasnia, From Climate Change in the Arctic to Urban Air Quality in the LA Basin: Using Advanced Chromatography to Fingerprint Biogenic and Anthropogenic Sources of Gaseous Organic Carbon

Cindy Yañez, Tracing Fossil Fuel Carbon Dioxide Emissions from Cities



### RECENT EVENTS AND OUTREACH



#### **Climate Careers Panel**

Professionals and experts from various sectors shared their insights and experiences in the sustainability and climate action profession. Attendees learnt how to apply for federal jobs, explore career paths, and learn about emerging opportunities in the field.

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This webinar highlighted the importance of vehicle electrification in decarbonizing transportation. Experts discussed the rapid growth of light-duty electric vehicles, the potential for electrifying heavy-duty vehicles, and the necessity of expanding charging infrastructure.

## A.L.I.V.E Active Shooter Training

CE-CERT conducted an A.L.I.V.E. Active
Shooter Survival Training for students and
employees, focusing on critical assessment
and response strategies to ensure safety in
active shooter scenarios. This initiative
underscores our ongoing commitment to
community preparedness and safety.

### CE-CERT x Praesidium Training

CE-CERT, in collaboration with Praesidium, hosted an interactive training session on protecting minors and preventing abuse.

Participants gained essential knowledge on identifying red-flag behaviors, adopting best practices, and fulfilling mandated reporting requirements, reinforcing our commitment to a safer environment for all.



#### **CE-CERT Summer Soirée**

CE-CERT concluded the quarter with a vibrant Summer Soirée, featuring an afternoon of live music and BBQ. We extend our heartfelt thanks to everyone who participated, making it a delightful success despite the summer heat.



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When: July 18th, 2024 | 8:30 AM to 10:30 AM | Zoom

**Details:** Join us for The Solar Valley Consortium's insightful webinar to discuss the hot topic of Community Solar in California. This timely session will open up dialogue about the recent ruling by the California PUC and its impact on the state's solar energy landscape.

**Details** 



### **CE-CERT Bingo Night**

When: July 19th, 2024 | 5:00 PM to 7:00PM | CE-CERT Kitchen

**Details:** Get ready for an evening packed with laughter, prizes, and friendly competition. And don't worry, we've got you covered with prizes, refreshments, and food! Bring your best Bingo skills and come hang out with us! It's going to be a blast, and you won't want to miss it.

**Details** 



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