

2022 International Meeting Controlled Environment Technology and Use
 organized by NCERA-101 in collaboration with UK-CEUG and ACEWG
 September 11th – 14th, 2022
 Tucson Marriott University Park Hotel, Tucson, Arizona

SUNDAY, 11 th September 2022	
14:00 – 17:00	Registration at <i>Marriott University Park Hotel Foyer</i>
17:30 – 20:00	Welcome Reception at Marriott University Park Hotel A special Ceremony: Event Blessing by a Native American Community Member
MONDAY, 12 th September 2022 (<i>Marriott University Park Hotel</i>)	
08:30 – 08:45	Opening and Welcome
Session 1: Sabino-Pima Room	Advances in LED Lighting: Current Research, Technologies, and Applications I Chair: Gary Stutte, SyNRGE LLC.
08:45 – 09:15	Keynote Speaker: Leo Marcelis, Wageningen University, The Netherlands <i>The colorful physiology of plants in controlled environments</i>
09:15 – 09:45	Marc Van Iersel, University of Georgia <i>Optimizing light use efficiency in controlled environments: from physiology to engineering</i>
09:45 – 10:15	Fei “Jeff” Jia, Heliospectra <i>Using light for crop production – from science to commercial application</i>
10:15 – 10:45	Coffee Break (Madera Room) and Poster Presentations (Sabino-Pima Room)
Session 2: Sabino-Pima Room	Advances in LED Lighting: Current Research, Technologies, and Applications II Chair: Ricardo Hernandez, North Carolina State University
10:45 – 11:15	Erik Runkle, Michigan State University <i>Sole-source lighting of leafy greens and ornamental seedlings</i>
11:15 – 11:45	Bruce Bugbee, Utah State University <i>The McCree curve revisited: Evidence for photosynthetic photons below 400 and above 700 nm</i>
11:45 – 12:15	Mark Lefsrud, McGill University <i>The novel factors that drive photosynthesis based on a refined analysis of the PAR curve</i>
12:15 – 12:45	Panel 1: Indoor Agriculture Economic Viability, Moderator: Chris Higgins (Hort Americas), Patrick Friesen (BioChambers), Simone Valle de Souza (Michigan State Univ.)
12:45 – 13:45	Lunch (Canyons Room)
Session 3: Sabino-Pima Room	Controlled Environments: State of the Art, Controls and Automation in Indoor Agriculture Chair: AJ Both, Rutgers University
13:45 – 14:15	Efren Fitz-Rodriguez, Chapingo Autonomous University, Mexico <i>Smart Controlled Environments: from greenhouses to indoor farming</i>
14:15 – 14:45	Jan Westra, Priva <i>With great power comes great responsibility: in indoor more relying on control, more opportunities to do it wrong</i>
14:45 – 15:15	Nadia Sabeh, Dr. Greenhouse <i>HVAC: Energy Efficiency, Sustainability, and the Cost of Climate Control</i>
15:15 – 15:45	Peter Ling, The Ohio State University <i>Emerging sensing techniques for controlled environment plant production</i>
15:45 – 16:15	Student Lightning Talks
16:15 – 16:30	Coffee Break (Madera Room) and Poster Presentations (Sabino-Pima Room)
16:30 – 18:00	NCERA 101 Business Meeting
19:00	Gala and Award Dinner (Sabino-Pima Room, Marriott University Park Hotel)

TUESDAY, 13th September 2022 (Marriott University Park Hotel)	
Session 4: Sabino-Pima Room	Energy, Economics and Sustainability in Controlled Environments Chair: Genhua Niu, Texas A&M University
08:45 – 09:15	Keynote Speaker: Nate Storey, Plenty <i>The economics of indoor ag: a rapidly evolving landscape</i>
09:15 – 09:45	Neil Mattson, Cornell University <i>The economic & environmental footprint of urban and peri-urban production of lettuce in greenhouses and plant factories.</i>
09:45 – 10:15	Jenn Frymark, Gotham Greens <i>Standardized reporting and benchmarking: Metrics to evaluate yields, economic viability and sustainability of food production in controlled environments</i>
10:15 – 10:45	Coffee Break (Madera Room) and Poster Presentations (Sabino-Pima Room)
Session 5: Sabino-Pima Room	Controlled Environments: Novel Applications Chair: Ray Wheeler, NASA-Kennedy Space Center
10:45 – 11:15	Gioia Massa, NASA-Kennedy Space Center <i>Space Crop Production Controlled Environments</i>
11:15 – 11:45	Graeme Smith, Graeme Smith Consulting-Australia <i>Future gazing for modern controlled production systems</i>
11:45 – 12:15	Julian Franklin, Rothamsted Research, United Kingdom <i>Controlled Environments for Containment</i>
12:15 – 12:45	Panel 2: Indoor Agriculture Sustainability, Moderator: Penny McBride (Univ. of California-ANR), Martin Ruebelt (Nature Sweet), Ryan Lefers (Red Sea Farms).
12:45 – 13:45	Lunch (Canyons Room)
Session 6: Sabino-Pima Room	Controlled Environments: Physiology, Breeding, Food Nutrition Chair: Celina Gomez, University of Florida
13:45 – 14:15	Royal Heins, Professor Emeritus, Michigan State University <i>Cultural and flowering physiology of Hemp</i>
14:15 – 14:45	James Faust, Clemson University <i>Pinpointing the PPF threshold for photoperiod perception in plants</i>
14:45 – 15:15	Richard Poiré-Lassus, Australian Plant Phenomics Facility/Australian National University <i>Advanced controlled environments and phenotyping techniques to overcome the challenges of Australian Plants.</i>
15:15 – 15:45	Alexis Moschopoulos, Grobotic Systems, United Kingdom <i>Smart crop monitoring and an open source plant growth protocol for plant science research</i>
15:45 – 16:30	Coffee Break (Madera Room) and Poster Presentations (Sabino-Pima Room)
16:30 – 17:00	Panel 3: Production Quality in Indoor Agriculture, Moderator: Jim Pantaleo (UC-Davis AI Institute), Dave Hawley (Fluence), Matt Lingard (Bright Farms), Adam Greenberg (IUNU)
WEDNESDAY, 14th September 2022	
08:00 – 10:30	Bayer Crop Science Marana Greenhouse Facility tour (9475 N Sanders Rd, Tucson, AZ 85743)
10:00 – 15:30	Controlled Environment Agriculture Center Facility Tours (1951 E. Roger Rd., Tucson, AZ 85719) and Lunch at CEAC.

Murat Kacira, Gene Giacomelli, Joel Cuello
The Local Organizing Committee
Controlled Environment Agriculture Center
The University of Arizona