

YOUR PASSPORT TO

THE  
COLOR  
OF SCIENCE™



Energy  
EDITION



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# Celebrating Diversity in Energy

**The Color of Science™** is COSI's signature diversity and equity initiative which spotlights the amazing contributions to science, technology, engineering and math (STEM), made by women and persons of color through various year-round programming. In this passport, you will explore the great diversity that exists within the life science landscape. We hope you enjoy reading these stories about some of the brilliant minds of the researchers and scientists studying ENERGY!

## Dr. Frederic Bertley

COSI's President and CEO,  
Founder, The Color of Science™



## Jessica O. Matthews, MBA

Renewable Energy Inventor

Jessica Matthews is the founder and CEO of Uncharted Power, a tech company building resilient, accessible and cost-effective power access through infrastructure.

Jessica created the Soccket, a soccer ball that stores kinetic energy as it's used, and with a half-hour of play can generate enough energy to power a small LED light for 3 hours! Her team works to create cost-efficient energy for the developing world. Matthews is leading the way to address the generation, transmission and storage issues many underserved communities face.



Image Credit: IPO Education Foundation

### Did you know?

Electricity travels at the speed of light – over 186,000 miles per second.



## Olga González-Sanabria,

PhD Chemical Engineer

During her career at NASA, Dr. González-Sanabria played an instrumental role in the power systems area with the development of the "Long Cycle-Life Nickel-Hydrogen Batteries".

These batteries helped to enable the International Space Station power system. She has been with NASA for 30 years, and remains there today. She is a member of Ohio Women's Hall of Fame!



Image Credit: Wikipedia

### Interesting Fact:

The International Space Station is entirely solar powered.



## Joshua A. Frieman, PhD

Theoretical Astrophysicist

Dr. Frieman is known for his work studying dark energy and cosmology, and he co-founded the Dark Energy Survey experiment, a visible and near-infrared survey that aims to probe the dynamics of the expansion of the Universe and the growth of large-scale structure. In 2019, the United States Department of Energy named him a DOE Office of Science Distinguished Scientists Fellow, for his pioneering advances in the science of dark energy and cosmic acceleration.



Image Credit: University of Chicago News

### Fun Fact:

Scientists have determined that dark energy makes up roughly 68 percent of the universe.



## Zhenan Bao, PhD

Chemical Engineer

Dr. Bao is a professor of Chemical Engineering and Material Science and Engineering at Stanford University. Dr. Bao works to develop cutting edge flexible, stretchable electronics and energy devices. She was selected as Nature's Ten People who Mattered in 2015, as a "Master of Materials" for her work on artificial electronic skin! Dr. Bao founded the Stanford Wearable Electronics Initiative (eWEAR) in 2016, and serves as the faculty director.

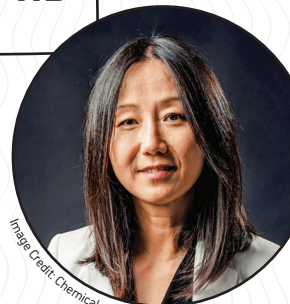


Image Credit: Chemical and Engineering News

### Fun Fact:

Conductors are materials that can carry electricity - they conduct electricity. The opposite of a conductor is an insulator. An insulator opposes the flow of electricity.



## Hemamala Karunadasa, PhD Chemist

Dr. Karunadasa is an Assistant Professor of Chemistry at Stanford University. Using the tools of synthetic chemistry, her group at Stanford designs hybrid materials that couple molecules with properties of inorganic solids. She works on hybrid organic – inorganic materials, for clean energy and large area lighting.



Image Credit: Stanford University

### Fun Fact:

Perovskites are the most abundant mineral on the planet.



## André Taylor, PhD Chemical Engineer

Dr. Taylor is a scientist and an Associate Professor of Chemical Engineering at the New York University Tandon School of Engineering. Dr. Taylor works on developing materials and devices for energy conversion and storage, with a focus on solar cells. He has also worked on electrochemical fuel cells and batteries. He was awarded the Presidential Early Career Award for Scientists and Engineers in 2010 and named as one of The Community of Scholars' Most Influential Black Researchers of 2020.



Image Credit: NYU Tandon School of Engineering

### Did you know?

One hour of sunlight is equivalent to one year's worth of energy for the planet.



## Stanley Atcitty, PhD

Engineer

Dr. Atcitty leads the power electronics subprogram as part of the DOE Energy Storage Program and has gained international recognition for its state-of-the-art research and development under his leadership. Five of his projects have won the prestigious R&D 100 award from the Research & Development magazine. He researches how power electronics are necessary for energy storage and distribution!



Image Credit: University of Nebraska-Lincoln

### Fun Fact:

Contrary to popular belief, solar panels still work on cloudy days.



## Beatriz Roldán Cuenya,

PhD Physicist

Dr. Cuenya is a director at the Fritz Haber Institute, where she heads the Department of Interface Science. She studies tiny microscopic materials and how they help stop environmental damage and help with energy conversion. Dr. Cuenya has received multiple awards for her research in chemical energy conversion.



Image Credit: Fritz Haber Institute

### Did you know?

Energy can be transformed from one form to another. In lightning, electric potential energy transforms into light, heat and sound energy.



## Zhong Lin Wang, PhD

Physicist

Dr. Wang is a physicist, materials scientist and engineer who specializes in nanotechnology and energy science.

He pioneered the field of piezotronics, which is the electric charge that builds up from pressure in solid materials. This historical breakthrough has important applications in nanorobotics, human-electronics interface and sensors!

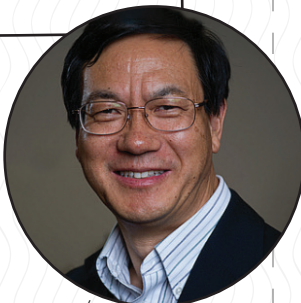


Image Credit: Wikipedia

### Interesting Fact:

Piezoelectric material generates a small electrical voltage when its shape changes.



## Marcelle Soares-Santos, PhD

Physicist

Dr. Soares-Santos is a member of the Dark Energy Survey (DES) Collaboration.

Her research focuses on uncovering the nature of the accelerated expansion of the Universe using data from the largest sky surveys ever conducted. She had a leading role in the construction of the DES camera. She also leads a NEW effort in the field: the search for images of space ripples as a new method to study the future of dark energy.



Image Credit: Brandeis University

### Did you know?

Dark energy is believed to be the driving force behind the expansion of space.



## Thomas Zacharia, PhD

Laboratory Director of  
Oak Ridge National Labs



*Image Credit: Oak Ridge National Labs*

As the director of a laboratory, Dr. Zacharia guides the application of solutions to compelling problems in science and technology, and the energy sector. He oversees the operation of a high-power proton accelerator and a nuclear reactor, and works to showcase ORNL's signature strengths in materials science, nuclear science and engineering to deliver mission outcomes for the U.S. Department of Energy. Dr. Zacharia holds two U.S. patents and is author or co-author of more than 100 publications!

### Did you know?

The first solar powered satellite is still in orbit.



## Caroline Winn

CEO of San Diego  
Gas & Electric (SDG&E)



*Image Credit: San Diego Gas & Electric*

Caroline Winn is the CEO for San Diego Gas & Electric (SDG&E). Caroline's team provides electricity, natural gas and value-added products and services. Winn is widely recognized for SDG&E's national leadership in sustainability, technology and innovation, including the company's significant safety and wildfire mitigation efforts. Caroline first joined this company as an engineer over 20 years ago, after earning her Bachelors of Electrical Engineering from California State University.

### Did you know?

The United States is the world leader in Wind Power.



## Ugwen I. Eneyo, PhD

Co-Founder and CEO,  
SHYFT Power Solutions

Dr. Eneyo co-founded SHYFT Power Solutions, an award-winning energy-tech company that is pioneering the use of software and big data to improve access to clean, reliable and affordable energy solutions in places that struggle with grid resiliency. Her studies explored how we use tech to create “grids of the future” for people in need!



*Image Credit: Dab Conference*

### Did you know?

We can get energy from trash and sewage.



## Arcilia Acosta

President & CEO of CARCON

Arcilia Acosta is the president and CEO of CARCON Industries and Construction, a full-services construction firm, and she is also the founder and CEO of Southwestern Testing Laboratories, a geotechnical engineering and construction materials testing firm. Recently, Ms. Acosta was featured in Latino Leaders Magazine’s TOP 20 Latinos in Energy issue. Ms. Acosta is a member of the National Women Energy Directors Network.



*Image Credit: Communities Foundation of Texas*

### Did you know?

10 Google searches can power a 60-watt lightbulb.



## Matthew N Portis

Co-founder of SolGreen

Portis, an Akron, Ohio native, invented SolGreen, the first and only Black-owned and operated company that has invented, engineered and patented the first solar charging table or solar workstation, called the "Evodia Solar Workstation". Portis and his company invented this to meet the power and amenity needs of everyday people who are increasingly demanding of adequate seating, shelter and power to utilize cell phones, laptops, Wi-Fi, and lighting anytime and anywhere!

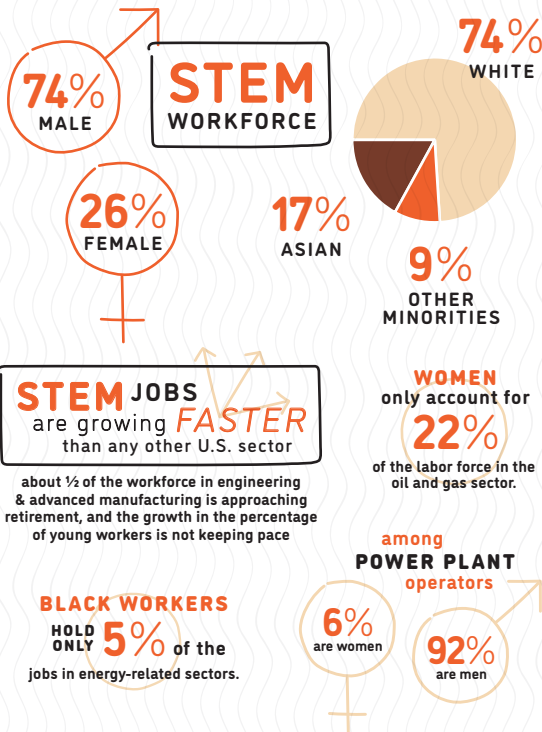
Image Credit: AfroTech

### Did you know?

Solar energy produces no pollution when generating electricity!

## FUN FACTS

## WHY WE NEED DIVERSITY in STEM





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the Color of Science™  
please visit:  
**[cosi.org/colorofscience](https://cosi.org/colorofscience)**  
**#scienceisforeveryone**



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