

WEST VALLEY STEM CLUB

NOVEMBER 2023 NEWSLETTER www.engineersaz.com

The WV STEM Club is a social organization which meets monthly for lunch with a speaker on a topic of interest. Spouses and guests are invited and many attend regularly. Short field trips are occasionally scheduled. Membership is open to anyone who has worked in or has an interest in Engineering, Science or Technology. Meetings are held at 11:30am on the first Friday of each month (unless otherwise noted), October through June, at Grandview Terrace, in the fourth-floor ballroom, at 14515 W. Granite Valley Drive, Sun City West, AZ. Guests are always welcome. Contact Phil Main: maintwin3@gmail.com, 623-826-0101 (cell).

NOVEMBER 3 PROGRAM

The World of Webb, and Seeing Through the Eyes of Einstein

Dr. Rogier Windhorst

Regents' and Foundation Professor, JWST
Interdisciplinary Scientist, Arizona State University



Dr. Windhorst's research is in astronomy, cosmology, galaxy formation and evolution, the cosmic dark ages and the epoch of First Light, and astronomical instrumentation. Since the early 1990's, his group at ASU has contributed significantly to unraveling the formation and evolution of distant galaxies with the Hubble Space Telescope. He is one of the world's six Interdisciplinary Scientists

for NASA's 6.5 meter James Webb Space Telescope (JWST) launched in 2021. His group at ASU plans to use JWST to map the epoch of First Light in detail. Dr. Windhorst holds a Ph.D. in Astronomy, a M.Sc. in Astronomy and Physics, and a B.Sc. in Astronomy, Physics and Mathematics from the University of Leiden.

Abstract: This talk will provide a summary of the 6.5 meter NASA James Webb Space Telescope (JWST), the near--mid-IR sequel to Hubble. The telescope completed building and testing in summer 2021 and was successfully launched from Kourou, French Guiana on an ESA Ariane V rocket on December 25, 2021. Some of the best early science that JWST has done starting in summer 2022, as inspired by Hubble Wide Field Camera 3 will be reviewed.

The main and most dramatic discoveries by JWST will be discussed. For example, how much cosmic star-formation has produced its own dust and has been hidden in its own dust. I will put the formation of the Earth 4.5 billion years ago in perspective when other galaxies were already twice as old!

Last, I will show Webb's beautiful Deep Field images that have revealed the most distant galaxies which produced the dust out of which the Earth and the solar system were later formed. In particular, I will show the most dramatic JWST images of gravitationally lensing clusters, which are the most massive known gravitational structures in the universe, with masses up to several thousand trillion Solar masses. Einstein predicted that such massive objects would bend the light from objects behind them, although he did not think this could be observed. Yet, Webb has shown us dramatic examples of these massive clusters bending background galaxy images into the most beautiful and exotic arc-like structures.

Even better yet, Webb has shown a number of very distant stars going across the "near-infinity magnification" lines so Webb could

observe them. Webb was designed to see the epoch of First Light ... and now it is indeed observing some of the first stars directly, viewing the universe through the eyes of Einstein.

PRESIDENT'S MESSAGE

Jim Schlenvogt

Hello Everyone! We had a great October meeting. With the new Alzheimer's drugs and tests for early detection and treatment, the battle with Alzheimer's is gaining momentum.

At the November 3rd meeting, the Nominating Committee will be taking Club officer nominations for the 2024 calendar year. After the nominations, the voting for the election of the 2024 officers will occur. The officers will assume office at the January 5, 2024 meeting. In addition, if you are interested in serving on the 2024 Board of Director's or becoming an Assistant Officer, (so you can learn the duties of the Club's Officers), this opportunity is also available.

In addition, the Board is recruiting participants for the following field trips:

ASU Space Exploration Field Trip, Earth and Space Exploration Day is a free annual event hosted by the School of Earth and Space Exploration. The event includes talks with scientists, interactive exhibits, 3D planetarium shows, and student science exhibits. November 4, 2023 on the ASU Tempe Campus inside/ outside Bldg. # ISTB4 from 10:00 a.m. to 2:00 p.m. Location: 781 E Terrace Mall, Tempe, AZ

November 18th – City of Surprise SciTech Festival, More than 1,200 science enthusiasts of all ages attended the City's 2022 SciTech Festival to view robotics presentations, fun experiments and learn about opportunities to engage in STEAM-related (science, technology, engineering, art and math) programs. The Club will have a free booth to participate in this year's event.

Following are some of the future luncheon meeting topics for which the Club has written commitments from the speakers:

- James Webb Telescope Project
- Science of Arizona Groundwater Aquifer Replenishment
- NASA's Psyche Mission to an Asteroid
- TGen's Pancreatic Cancer Research

The Club's internet website is active: www.engineersaz.com

We look forward to seeing you at the next meeting. Bring a guest!

We appreciate your support!

WEST VALLEY STEM NOVEMBER 2023

2023 OFFICERS

President	Jim Schlenvogt
Vice President	George Zieglgansberger
Secretary	Darrell Armbruster
Treasurer	Carol Mungas
Asst. Treas.	Dave Campbell

COMMITTEE CHAIRPERSONS

Programs	Peter Rauen/Rick Cecil
Membership	Philip Main
Reservations	Philip Main
Luncheons	Jim Schlenvogt
Scholarship	Jim Schlenvogt
Member at Large	Hal Lind
Newsletter	Dave and Karen Campbell
Website	Bonnie Williams
Event Audio	Hal Lind/Doug Totel
Event Computer	Paul Scherer
Publicity	Lance Berglund
Field Trips	George Zieglgansberger
Past President	Steve Sumner

Email the Board at: js3820@msn.com



Paul Scherer/Karen Campbell/Jim Schlenvogt
Proposed Club Logo Message

Several years ago, and during COVID, the Club's Board approved renaming the VEST Club to the West Valley STEM Club. STEM acronym is widely used and recognized throughout the world. In order to market the Club to the public and to recruit new members, the Club's name was changed. The name change has been very successful.

The acronym STEM has gained wide use in education, which matches our scholarship focus, and was chosen in renaming the clubs evolving interests. The triangle logo indicates the foundation of Mathematics for all of Science, then Engineering then all Technologies. The coordination of colors between the STEM acronym letters and the triangle blocks indicates the ascending order of disciplines and replaces the single discipline in the engineering tools logo. Similarly, concentric circles and pyramid blocks were considered.

We look forward to your feedback at the next meeting. We propose to approve and roll-out the new Club Logo prior to the January, 2024 meeting.

TREASURER'S REPORT OCTOBER 2023

Gross General Fund Balance	\$10,277.40
Net Fund Balance (after payment of obligations)	\$7,052.16
Membership	85

The 50/50 for October was \$58, George Zieglgansberger donated \$20 back for the Scholarship Fund. Thank You!

DECEMBER 1 PROGRAM

Arizona - Science of Groundwater Aquifer Replenishment

Cera Linehan

Arizona Department of Water Resources
Groundwater Modeling Section

Cera Linehan is a hydrogeologist with the Arizona Department of Water Resources Groundwater Modeling Section. She completed a Bachelor of Science in Geology at Arizona State University in 2018.

Abstract

The presentation will explore the Arizona Department of Water Resources Recharge program as well as provide an explanation on naturally occurring recharge. The discussion about the ADWR recharge program will focus on the types of recharge facilities that are qualified for groundwater credit permits. Natural recharge rates vary due to a multitude of reasons with urbanization, geology, and regional climate being some of the major factors. The presentation will talk about how these components impact recharge and how ADWR estimates rates for studies.

OCTOBER 6 PROGRAM

The Science of Preventing Alzheimer's Disease

Mike Malek-Ahmadi, PhD,
GStat Bioinformatics Scientist
Banner Alzheimer's Institute



2024 MEMBERSHIP DUES

Dues for 2024 are \$25.00 of which half goes to the Scholarship Fund. **Please consider making an additional donation to the Scholarship Fund** (put scholarship in the memo line). Please mail your check(s), made out to West Valley STEM to: Philip Main 17604 N Buntline Drive, Sun City West, AZ 85375-5148 maintwin3@gmail.com , 623-748-8222 (Home), 623-826-0101 (Cell)