



ORION Trapezium

April 2018 Volume 45, Issue 4

Who are we?

ORION was founded in April 1974, by a group of scientists at the United States Department of Energy facilities in Oak Ridge, Tennessee. Our original goal was to perform correlated, instrumented observations of atmospheric and astrophysical phenomena. Since then, we have expanded in many directions, including optical and radio astronomy and instrument design. Have a look at <https://orioninc.org> and <https://orionastronomy.wordpress.com/meetings/upcoming-meetings/>

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Future Events

ORION Meeting

Wednesday, April 18
Goff Health Sciences &
Technology Bldg., Room 104
Roane State Community
College, Oak Ridge Campus

TAO Public Stargazes

Saturday, April 7, 2018
Saturday, April 21, 2018
Roane State Community College
Tamke-Allan Observatory (TAO)
7:30 pm to 12:00 am
8:00 pm program
Look at
<http://www.roanestate.edu/obs/>

TAO Notes

ORION people are invited to arrive early (if announced on email) to prepare for evening viewing. Bring a telescope, red flashlight and munchies.
Map available at
www.roanestate.edu/obs.visit.htm

April 2018 Meeting

Wednesday, April 18, 7 PM, Goff Health Sciences and Technology Building, Room 104, Roane State Community College, Oak Ridge

Presentation: Early evolution of the Moon

Speaker: Dr. Nick Dygert Assistant Professor, Petrology and Geochemistry UT Department of Earth and Planetary Sciences



Dr. Dygert grew up in Washington State and gained an appreciation for geology climbing mountains in the Cascades and Olympics. As an undergraduate at the University of Rochester, he wrote a thesis on the geochemistry of anomalous crater in the Bolivian Altiplano. He went on to graduate school at Brown University after two years in geotechnical and environmental consulting. His dissertation focused on the physical and chemical evolution of the lunar and terrestrial mantles, and includes chapters on experimental petrology, rock deformation, and the trace element geochemistry of ophiolitic peridotites. Nick moved on to a postdoctoral fellowship at UT Austin, where he acquired experience in numerical modeling and synchrotron-based experimental techniques, and worked on deformed peridotite xenoliths and an enstatite achondrite. He uses experimental and field investigations to understand processes that shape the evolution of planetary interiors and crusts, and to interpret their expressions in the rock record.

Abstract

The globally homogeneous, monomineralic lunar crust suggests the Moon formed after a giant impact between Earth and another body. This energetic event would have produced a whole-Moon magma ocean. Petrologic and geophysical models argue the lunar magma ocean crystallized from the bottom up, forming a gravitationally unstable cumulate mineral pile, with the densest phases overlying less dense phases in the lunar interior. Dense minerals may have flowed toward the core as solids, displacing lower density minerals that flowed upward toward the crust in a process known as cumulate mantle overturn. Cumulate mantle overturn has important consequences for the petrogenesis of the lunar basalts, the spatial distribution of heat-producing radionuclides in the lunar interior, and the efficiency of a lunar core dynamo. This talk presents new experimental constraints on physical and chemical properties of lunar minerals and silicate melts, improving our understanding of lunar magma ocean crystallization, cumulate mantle overturn, and the ways that present-day lunar surface and interior features came to be.

Last Month's Meeting

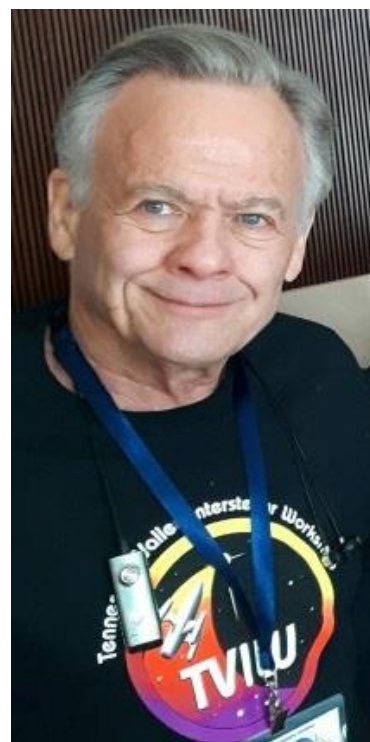
March 2018

**Wednesday, March 21, 7 PM, Goff Health Sciences and
Technology Building, Room 104, Roane State Community
College, Oak Ridge**

Presentation: Latest SETI Perspective from TVIW

Speakers: John Preston and David Fields

The focus will be the Search for Extraterrestrial Intelligence (SETI) as discussed at the Tennessee Valley Interstellar Workshop (TVIW) meeting held in Huntsville, Alabama in October 2017. The meeting agenda included about 30 technical presentations, 4 seminars, 3 workshops and two posters, plus science fiction, art and music events. The sponsored public lecture was by Dr. Andrew Siemion of the UC Berkley Center for SETI Research, who discussed "The Search for Ourselves Among the Stars".



Board Meeting and New Officers

The newly-elected ORION Board were elected on Feb. 17 and (most of us) met at TAO for our Board meeting meeting and officer election on March 3.



Congrats to our new officers:

Dave McCallister -- President
David Fields -- Vice President
Linda Fippin -- Secretary
Noah Frere -- Treasurer

Jaclyn Waymire -- Trapezium Editor and Newspaper Publicity
Jennifer Hartwig -- Programs and WordPress site
Raj Jain -- Facebook admin
Rob Fowler -- ORION Videography
John Mannone -- Science-Art Liaison
Roger Lane -- KO Outreach
Roy Morrow -- Tellico Village Outreach
Owen Hoffman -- Obed Outreach

Should be a great year (or more) for us!

Hello, ORION! I'm Dave McCallister.

During the March 3rd ORION Board meeting, I was elected as the president of ORION for 2018. I want to thank ORION founder, longtime president, and current VP Dr. David Fields for his encouragement and support during this transition.

I have been to many ORION events over the last three years, including giving the January 2018 program and have met many members throughout the Knoxville astronomy scene, but I'm sure there are many members of ORION that I have not had the pleasure of meeting. So I thought I'd introduce myself here.

All of us that enjoy this hobby had a moment or event that inspired our pursuit of astronomy. My grandfather had a modest refractor though which I distinctly remember viewing a slim, crescent Venus in a twilight West Virginia sky when I was around 6 or 7. I became interested in science and read as much as I could get my hands on. Before moving to Knoxville to pursue as master's in astrophysics, I was a high school physics teacher in Cincinnati, and spent about 10 years volunteering at the Cincinnati Observatory, the western hemisphere's first public observatory.



The Cincinnati Observatory's 16 inch 1903 Clark refractor.

While in Knoxville, I've had the pleasure of working closely with Paul Lewis at UT with Space Science Outreach, including the rooftop observing deck and the digital planetarium. I look forward to help guiding the club over the next year. Please say hello the next time you are at an ORION event!

Carpe Noctum,
Dave

More About ORION

ORION is an amateur science and astronomy club centered in Oak Ridge, TN that was founded in April 1974 by a group of scientists at the United States Department of Energy facility in Oak Ridge, Tennessee. We serve Oak Ridge, Knoxville, and the counties of Anderson, Knox, and Roane.

ORION's mission is to support science research, teaching, and amateur astronomy in East Tennessee, and therefore we are closely associated with and support TAO by volunteering to host their public events, share our knowledge of the skies with a variety of telescopes, and help provide intellectually stimulating programs at the observatory. ORION works to share the wonders of the cosmos and the culture of science to people from all walks of life.

Members are scientists, engineers, technicians, and others with varied talents and expertise. Over half have telescopes, many are amateur radio operators, and some have a technical interest in astrophotography.

ORION has working relationships with several organizations, including museums and amateur astronomy groups.

Membership is open to individuals who will actively contribute their time and ideas. Our annual membership dues are \$20.00 and student discounts are available.

Board:

Bob Edwards (backup Treasurer)

David Fields (VP, Yahoo and IO)

Linda Fippin (Secretary)

Rob Fowler (Videographer)

Noah Frere (Treasurer)

Jennifer Hartwig (Programs, Wordpress)

Owen Hoffman (Obed Outreach)

Raj Jain (Facebook admin)

Roger Lane (KO Outreach)

John Mannone (Science-Art)

Dave McCallister (President)

Roy Morrow (Tellico Village Outreach)

Jaclyn Waymire (Editor, Newspaper
Publicity)

Officers:

President: Dave McCallister

Vice President: David Fields

Secretary: Linda Fippin

Treasurers: Noah Frere and Bob Edwards

Trapezium Editor: Jaclyn Waymire