Galaxy Forum travels with Juno to Jupiter, puts eyes on the Sun

Is this giant planet the story of our solar system? Good question and part of the Juno spacecraft’s mission. Two speakers will delve into that at the Ad Astra Kansas Foundation’s 2018 Galaxy Forum. This free event for the public will be held Saturday, Aug. 11 at The Cosmosphere from 1-3 p.m.

“[Current theory is] that Jupiter formed behind (just after) our Sun. At one time Jupiter and the Sun were two big masses competing for dominance. The hope is that by understanding how Jupiter formed, we might better answer how the solar system formed,” says Stephen Houston, one of the speakers at this year’s forum.

Houston, a native of Tribune, is a fourth-year grad student in plasma physics at KU who has been working with NASA and Johns Hopkins Applied Physics Lab on data from the Juno spacecraft since it arrived at Jupiter in 2016.

Also speaking will be Dr. Thomas E. Cravens of KU, whose 30-year career in astrophysics has included work with NASA’s Pioneer, Maven, Cassini and Juno missions, as well as theoretical modeling of atmospheres and ionospheres of Jupiter’s and other planets’ moons. Solar wind interaction with planetary bodies is another of his research specialties.

Speaking of the Sun—exploration of it will be the other topic at the Galaxy Forum. WSU physics grad student Caleb Gimar will give an overview of what we know, what we want to know and highlight two solar projects—the soon-to-be-launched Parker Solar Probe and the NASA Innovative Advanced Concept project recently awarded to WSU to design a neutrino spacecraft to study the solar interior. Gimar is part of that team.

This annual event is sponsored by the Ad Astra Kansas Foundation with the generous cooperation of The Cosmosphere.

Kansas astronaut will launch to International Space Station in October

Born in Belleville, grew up in Hoxie—1994 Hoxie High School graduate Tyler (Nick) Hague has come a long way to his current assignment as a flight engineer on the ISS Expedition 57/58 crew which will launch October 11. The Soyuz MS-10 spacecraft will launch from the Baikonur Cosmodrome in Kazakhstan.

The six-month mission (returning April 2019) will include 300+ research experiments and technology demonstrations not possible on Earth, increasing science knowledge for humanity’s benefit on Earth and to help enable future long-duration exploration into deep space.

He will also be aboard during the expected first flights of NASA’s Commercial Crew Program, which will resume launches of human spaceflight from U.S. soil.

Hague, a colonel in the U.S. Air Force, earned a bachelor’s in astronomical engineering from the U.S.A.F Academy in 1998 and a master’s in aeronautical and astronautical engineering from M.I.T. in 2000. He was selected as one of eight members of the NASA 2013 astronaut training class. The two-year candidate training included scientific and technical briefings, intensive instruction in ISS systems, spacewalks, Russian Language training, robotics, psychological training, T-38 flight training, water and wilderness survival training. Follow Hague on social media at: https://twitter.com/AstroHague
Launch sites are in the Ellinwood, LaCrosse and Hutchinson areas. KOSMO is chartered with the National Association of Rocketry. For info, go to www.kosmo427.org

Teeniemunde Rocketry Club: This group offers High Power Rocketry in southeast Kansas and southwest Missouri. The club is a member of the Tripoli Rocketry Association, for more info, go to www.teeniemundne.org

Kansas Space Tech—Offered by the Kansas 4-H organization since 1996, this program includes five categories: rocketry, robotics, computers, astronomy and unmanned aerial vehicles (drones).

The 4-H program is open to every child aged 7-19 in every county in Kansas as part of K-State Research and Extension. Not every county may offer Space Tech, but every county has a 4-H organization. One can find out if Space Tech is offered by contacting their local extension office.
KU mini-satellite launch is on the horizon

LAWRENCE—Madison Sargent has always had an eye to the stars. And now she is reaching out to them.

The University of Kansas junior in aerospace engineering is leading an effort to put a tiny satellite from Kansas into space—part of NASA’s CubeSat Launch Initiative (CLSI) that launches small payloads beyond Earth’s atmosphere. The students’ proposal has been selected for launch in 2019.

Sargent, who is from Prairie Village, and her team are working with KU alum Marco Villa (aerospace engineering master’s in 2002 and doctorate in 2005). He is now CEO of Tyvak International, a nanosatellite company in Italy.

Villa is a good resource—while at KU he led one of the university’s first efforts to launch a satellite under the CLSI program. In 2006, a KUbēSat was scheduled to be launched from Kazakhstan aboard a Russian rocket. The rocket’s failure doomed the effort.

It’s a big project, but the satellites are small. According to NASA, CubeSats are built in units of 10x10x10 centimeters (about 4 inches square). Payloads can be up to six units in size, weighing about 26.5 pounds.

The KU group’s six-unit payload will carry four instruments: a cosmic ray detector; a device to measure South Pole ice sheet thickness, and an astrophysics project with KU biologists that will carry bacteria and fungi for further study in partnership with K-12 students. A fourth instrument, an “energetic particle detector,” is sponsored by Fundamental Technologies, a Lawrence company specializing in space-related projects.

Kansas is one of the few states that does not have a satellite in space under the CLSI program.

In Memoriam...

With sadness we relay the passing of a past president of our foundation, Dr. Thomas P. Armstrong, on June 2 in Lawrence.

“I am a child of the Cold War and the Space Race,” he once said. “I grew up on a farm [near Atchison] with dark skies and enjoyed watching Sputnik go over, and responded to President Eisenhower’s call to get interested in science and catch up with the Russians.”

He certainly did that. For more than forty years, as a professor and researcher at KU and as a co-owner of Fundamental Technologies, Armstrong was on the cutting edge of space physics, space instrumentation and software. He co-designed the Voyager spacecraft in the 1970s and remained a co-investigator until his health failed in recent years. He worked with over 13 different spacecraft operating for more than 175 years in space, including Mariner, Galileo, Ulysses, Cassini and the Van Allen Probe.

He taught and mentored countless young scientists who work around the world today. He enjoyed sharing his knowledge with students of any age. And was beloved by all.

Ad Astra. Godspeed, Tom Armstrong.

Teachers can see free educational documentaries ...

...at the Cosmosphere until Aug. 31. It’s a thank-you from the Cosmosphere to teachers for all their hard work.

Topics include history, nature, technology as well as space.

For info contact helenek@cosmo.org

Other links: Now showing Teachers’ thank-you

BRIGHT IDEA! Come see both the documentary “Space Next” and our Galaxy Forum on Aug. 11!