



Second AFA Sponsored StellarXplorers Space Competition in Colorado Springs, CO Article by Rich Wendt, President

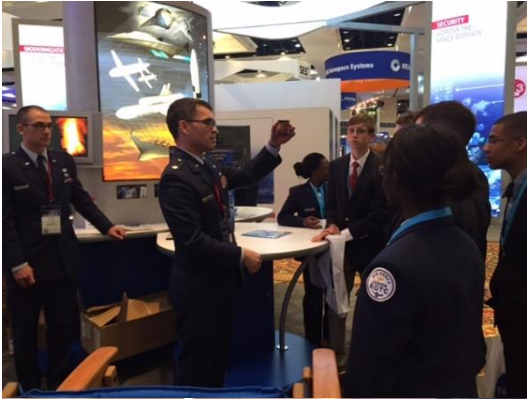
Mile High #127 Chapter; Photographs contributed by Kristen Christy, Sijan Chapter # 125; Additional information and edits by Linda Aldrich, Sijan Chapter # 125

On April 13, 2016, ten teams of high school students from across the Nation (and Germany) gathered at the Space Foundation's Discovery Center to tackle a problem of orbital design using Analytical Graphics Inc.'s (AGI) Systems Tool Kit (STK). The teams competed in StellarXplorers II, a Pilot National Deployment of a competition initiated last year with five Colorado teams participating. StellarXplorers II opened registration on October 1, 2015, and throughout the competition period, students were challenged to design realistic aspects of space operations, such as orbit design, satellite design and launch vehicle selection. For orbit and satellite design competitors used AGI's STK. Additionally, they were provided an online space textbook, called *Exploration of Space*. The actual competition consisted of three online Qualifying Rounds held January 14-16, February 18-20, and, March 3-5, 2016. The qualifying rounds required the teams to select orbits, choose spacecraft components and select a launch vehicle. During Rounds Two and Three, 20% of the total score included academic quizzes drawn from the *Exploration of Space* text. The top ten cumulative scores during the Qualifying Rounds determined which teams competed at the National Finals.



The AFA's Tim Brock provides Initial Mission Brief

The National Finals included all aspects of the qualification rounds and was conducted at the Space Foundation's Discovery Center in Colorado Springs, CO on April 13, 2016. The following day, each team gave a 15-minute debriefing which counted as much as 20 % of the Final Score. The teams then visited the Space Symposium Exhibit Hall at The Broadmoor Resort and Hotel after the Debriefing and then attended both a Reception/Awards Ceremony and the Space Technology Hall of Fame Dinner that evening.



Captions for pictures: Stellar Xplorer competitors touring the booths at the Space Symposium Exhibit Hall.

Lance P. Sijan AFA tour volunteer, Kristen Christy meeting with Dr. Melissa Lacey (USAF ret and AFA Member), group leader for the Huntsville ROTC students.

The 10 finalist teams included Rangeview High School from Aurora; Vista Ridge High School from Colorado Springs; a team from St. George Utah; four teams from the Los Angeles area of California; two teams from the Huntsville, Alabama area and a team from the U. S. DoD Dependent Schools in Kaiserslauten, Germany. "Observing the growth of our StellarXplorers program has been quite exciting. What is most impressive is these students, who are the future of our nation and its space community, and the way they have met every challenge we've set before them," said Larry Spencer, President of the Air Force Association. "We're thrilled to be offering a program that has generated such excitement amongst students and their educators." The Sirius Potatoes Team, CA, finished first in the competition and their Star Fleet Team finished second in the competition ahead of Rangeview High School, Aurora, CO. "StellarXplorers has broadened our vision on aerospace engineering with real life situations. Our team performed exceptionally well and the competition allowed us to learn so much about space, satellites engineering.," said Regina Kim, Sirius Potatoes team Captain. Team Director Elizabeth Grenier remarked, "From all of us here at Peninsula High School, we're thankful for this awesome opportunity. StellarXplorers has

positively impacted the students tremendously this year, as well as in their future!” The awards were presented by MajGen Roger Teague, Director of Space Programs, and Mr. Dick Bundy, AFA Vice Chairman for Aerospace Education. General Hyten, Commander, USAF Space Command, and Maj Gen Denker, Deputy Director, NRO, also were in attendance. The judges for StellarXplorers included Colonel Martin French, USAF, Chairman of United States Air Force Academy’s Astronautics Department as well as Major Anna Gunn-Golkin, USAF, also of the Astronautics Department Faculty.

The Space Foundation provided outstanding support. At their Discovery Center they were able to expand the technical support needed to accommodate twice the number of teams for the final competition from last year. They worked hand in glove with the StellarXplorers System Program Office to conduct the competition. The Lance P. Sijan Chapter volunteers were there in force to ensure manpower for registration and that students and their sponsors had snacks and lunch during the competition.



The Rangeview H.S. Space Raiders develop options at the Discovery Center.

One of the objectives of the Air Force Association is to ADVOCATE for aerospace power and STEM education. In February 2009, AFA’s CyberPatriot program began with a demonstration focusing on real world cybersecurity challenges. That program has matured into a full spectrum cyber education program extending from elementary through high schools. StellarXplorers, an education initiative established by AFA, is a one-of-a-kind space system competition designed to inspire students toward futures in science, technology, engineering, and mathematics (STEM) fields. Program sponsors include the US Air Force STEM Program, Orbital ATK, Kratos Defense Company, Analytic Graphics, Inc., and the Space Foundation.

Eventually, the AFA’s objective is to grow this space demonstration into a national program with a well-grounded educational component and with objectives of:

- Stimulating in students an appreciation for the criticality of an enduring U.S. space presence;
- Educating students on fundamental aspects of space systems engineering, space support systems, and space operations;
- Exposing students to space industry career opportunities; and
- Facilitating space industry internship and scholarship opportunities for participants.

For more information on StellarXplorers visit: www.stellarxplorers.org .