

**ATS Info on
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October 19, 2018

TRAJECTORIES 2018

Colorado School of Mines, Golden, CO

September 17-19, 2018

AIAA Space Forum

Hyatt Regency Orlando, Orlando, FL

[SPACE Link](#)

October 19, 2018

TRAJECTORIES Meet and Greet

Colorado School of Mines, Golden, CO

October 29, 2018

*AIAA-RM 7th Annual Technical
Symposium*

University of Colorado – South Denver,
Parker, CO

[ATS Link](#)

Note from the Chair

By Dr. Rusty Powell, *Millennium Engineering and Integration Company*

Hello Rocky Mountain Section!

I hope you've had a great summer. After a well-deserved rest, the RMS Council members recently met to discuss plans for the upcoming year. The activities will be great! In addition to our Annual Technical Symposium (October 29 at University of Colorado – South Denver in Parker, CO, page 5), we are planning exciting programs across the full spectrum of disciplines from the aerospace industry along the Front Range. Here's just a sample of programs that we anticipate: Dream Chaser from Sierra Nevada Corporation, Orion from Lockheed Martin, and a Vestas Wind Turbine Plant tour. We are also engaged with multiple outreach programs to support STEM and STEAM, supporting students and members alike, and encourage them to support AIAA and the aerospace community. In the Spring, we will continue our support of multiple Science Fairs as well as student paper and design competitions, before culminating our year with our annual Honors and Awards Banquet in April. The RMS exists to support you and the aerospace community. If you would like to get involved or provide inputs/suggestions on programs and events, please send use the form <https://engage.aiaa.org/rockymountain/contactus>. We look forward to seeing you at our events through this 2018-2019 year.

Best,

Rusty

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SECTION OFFICERS

Elected

Section Chairman	Dr. Rusty Powell
Chairman Elect	Dr. Merri Sanchez
Secretary	Kevin Mortensen
Treasurer	Dr. Taylor Lilly
Vice Chairman – North CO	John Marcantonio
Vice Chairman – South CO	Dr. Todd Nathaniel
Vice Chairman – MT	Erik Eliassen
Vice Chairman – WY	Mark Kettles

Committees

Fellow-At-Large	Gene Dionne
Member-At-Large	Pam Burke
Education and STEM	Brandon Walls
Honors and Awards	Stacey DeFore
Membership	Marshall Lee
Newsletter Editor	Adrian Nagle
Public Policy	Tracy Copp
Pre-College Outreach	OPEN
Programs	Chris Zeller
Technical Committee Liaison	OPEN
Webmaster	John Grace
Young Professionals	OPEN

We Need You!!

If you are interested in increasing your participation in AIAA Rocky Mountain Section, we need your help with positions in any of the committees. If you have an interest, please contact: Kevin Mortensen – kevin.mortensen@baesystems.com

Montana Aerospace Statistics

The state of Montana is part of our Rocky Mountain Section of AIAA. Montana employs approximately 640 with 350 in direct employment of aerospace and defense business. The aerospace and defense industry is valued at approximately \$121 million in sales with \$43 million GDP (or 0.1% of state total) and contributes \$4 million to state and local taxes. Some examples of aerospace and defense businesses in Montana include: Ascent Vision, Aerotronics, Bridger Aerospace, Montana Precision Products, S&K Aerospace.

Payload Project STEM-ulates Aerospace Passions

Kaitlin Engelbert, *Ball Aerospace Summer Intern*

What happens when communications and engineering collide? An experience of a lifetime featuring a rocket, a remote-control amphibious vehicle and more.

As part of the Ball Intern Remote Sensing Team (BIRST) program, Ball interns participate in an intensive, after-hours project to develop payloads from concept to launch. Interns team up with Ball volunteer mentors to design, integrate and test a payload to be launched on a United Launch Alliance (ULA) intern-built rocket or an Edge of Space Sciences (EOSS) high-altitude balloon.

Ball invites interns from all departments to participate in BIRST, even those without a technical background. This aspect of the program enticed me, a marketing and communications intern, to join in. Although



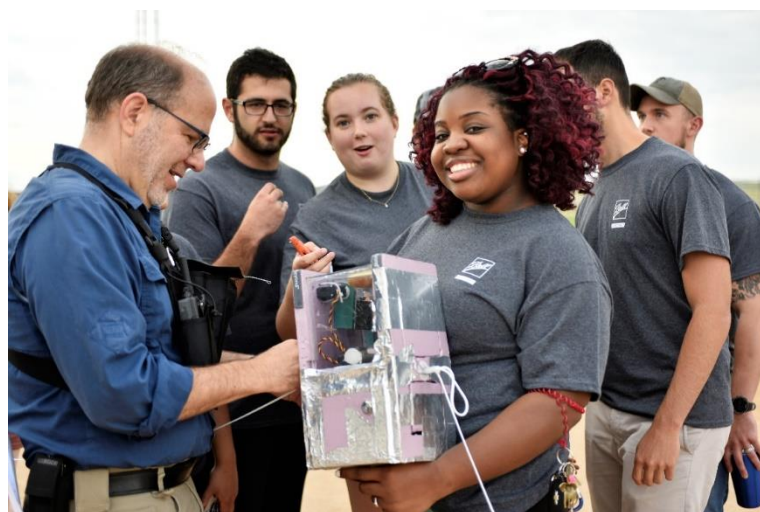
Courtesy Ball Aerospace

I'm majoring in astronomy, I had no prior experience working with hardware, and I wasn't sure how I could contribute. But I wanted to challenge myself and experience something completely out of my comfort zone, so I decided to sign up as program manager for my team.

As program manager, I had the unique position to oversee the entire development of my team's payload. That role required studying every subsystem we needed to design and then figure out how to best coordinate and facilitate the process. Serving as program manager provided an incredible experience, because I learned practical engineering skills while also having fun through the hands-on operation.

My team's payload consisted of two sub-payloads, one of which incorporated the Ball Aerospace logo on an illuminating box, played music and deployed a Go Beyond® branded parachute. Our other sub-payload was an amphibious remote-control rover, modified and upgraded from a RC chassis, that would stream live-feed video and drive, regardless of where it landed (water or land).

The other intern team payloads ranged from pancakes to dinosaurs to



Courtesy Ball Aerospace

paragliders, yielding an enjoyable and entertaining way to go through the concept-to-launch process.

As part of a BIRST team launching on a ULA rocket, I observed firsthand the ongoing 10-year partnership with ULA, which has enabled Ball Aerospace to be heavily involved with another valuable aspect of the program -- mentorship. Ball employees volunteer as mentors for not only the intern teams, but also the K-12 teams that join the BIRST adventure. Mentors primarily assist with technical problems and help only when

needed, allowing students to lead most of the design and build.

After two months of planning, late nights and plenty of pizza, our payloads were ready to launch on ULA's 41-foot sport rocket. The excitement of that day will forever be etched in my memories as one of the best days ever!

Thank you so much to Ball Aerospace and ULA for giving me the opportunity to explore my interests and making this rewarding program possible.

AIAA Diversity Grants Available – Have Any Ideas?

Adrian Nagle, Ball Aerospace

There are financial resources available from AIAA headquarters to help sections promote diversity and inclusion by defraying the cost of an event highlighting diversity and inclusion.

The Diversity Grant has a maximum \$500 distribution per year for each AIAA section. The AIAA Fiscal Year runs October 1 through September 30. A request has not been submitted from RMS this year! Once a program is proposed to an AIAA section and the section approves the event, the section completes the Diversity Event Request Form to submit to AIAA headquarters for approval. The funds can be distributed to the section treasure for the appropriate costs of the diversity event, or directly to an invoiced entity. To continue to receive future Diversity Grant funds, the section is

required to submit a report of the diversity event to the Diversity Working Group and the section is encouraged to add a diversity item in the section budget for more events the following year.

There are limits to the diversity grant such as not subsidizing alcohol (food is permitted), paying for events or speakers of political or religious topics, or purchasing any capital (computers or other equipment).

Examples of diversity and Inclusion events include screening of movies (such as "Hidden Figures"), Human Resource speaker discussing workplace bias, workshops for recognizing and handling diversity and inclusion issues at work, or supporting under-represented students or professionals to attend an AIAA event.

Do you have any event you would like the AIAA Rocky Mountain Section to pursue? Your ideas will help bring diverse programming to our membership and community.

REGISTRATION TODAY



AIAA-RM Annual
**TECHNICAL
SYMPOSIUM**

ATS 2018

Monday, October 29
8:00 a.m. - 5:00 p.m.

Hosted at:

CU South Denver

UNIVERSITY OF COLORADO

10035 S Peoria Lane Tree, CO 80134

Click here to Register Now
and for more Information

Abstract deadline September 29, 2018

Learn More: <https://www.aiaa-rm.tech>

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2018 EVENT SPONSORS





Courtesy of Christopher Dillmann

Excited Students Experience Aerostat Flying at Eagle County School STEM Event

Charlie Lambert, *SkySentry*

SkySentry was recently honored with a chance to demonstrate one of its small aerostats to the STEM students at the Eagle County Charter Academy in Edwards, Colorado. The company is an avid supporter of the STEM program, driven mainly by its perception that STEM contributes greatly to vibrant futures for both the students and country. In fact, SkySentry's principal benefited from a

STEM-like program more than 45 years ago, which led to entry into the US Air Force Academy and multiple engineering degrees.

The company demonstrated flight of a 3-cubic meter aerostat. The term aerostat means the helium balloon is attached to the ground by a tether, vs. floating freely. This balloon model was a Helikite, which has a kite synthesized beneath it for added lift and stability in winds. One of the most significant revelations of the demonstration flight was what we characterize as "the elegance of elevation." Specifically, the aerostat flew to a little over 400 feet above ground, and from that altitude, the line-of-sight distance to the horizon is over 25 miles. The effective range of camera and

radio payloads can be greatly expanded with a simple, stable, highly effective air vehicle.

The STEM students devised two camera payloads for flight on the aerostat, capturing videos and photographs of the area surrounding the Charter Academy.

That alone was pretty exciting to many of the participants, but the STEM coordinators arranged for all grades in the school to participate in the flights – literally. The aerostat is tied to a large reel, looking like a bicycle wheel. We would estimate about seven different groups of both male and female students, operated the reel to launch and recover the aerostat for multiple flights.

After the field demonstration, we talked to the students about the lighter-the-air industry, which encompasses both aerostats and airships. Wide ranging major

points included the reality that the principles and laws of physics dictate how aerospace vehicles perform. We discussed the advantages of aerostats over other types of vehicles, with “persistence” being the most important characteristic. In other words, the aerostat just sits in the air, on station, for hours or days at a time, with no requirement for fuel, expensive flight crews, or maintenance. Our personal experiences lead us to conclude that opportunities for scholarships, internships, and meaningful good-paying jobs are robust now and will continue to expand. Indeed, a focus on STEM majors in college could likely avoid large college debts!

Answering amazingly insightful questions and interacting with neatly dressed, enthusiastic students were great experiences for the company. As stated earlier, this event was an honor for SkySentry!



Courtesy of Christopher Dillmann

Trajectories 2018

October 19th 5-9 pm

Colorado School of Mines Student
Center | Ballrooms

www.minesalumni.com/trajectories



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Information and to RSVP