



Texas A&M University Cyclotron Institute Single Event Effects (SEE) Bootcamp Debrief

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Acronyms

- Goddard Space Flight Center (GSFC)
- Jet Propulsion Laboratory (JPL)
- National Aeronautics and Space Administration (NASA)
- Single Event Effects (SEE)
- Texas A&M University (TAMU)

Intro – The Elements of Circumstance



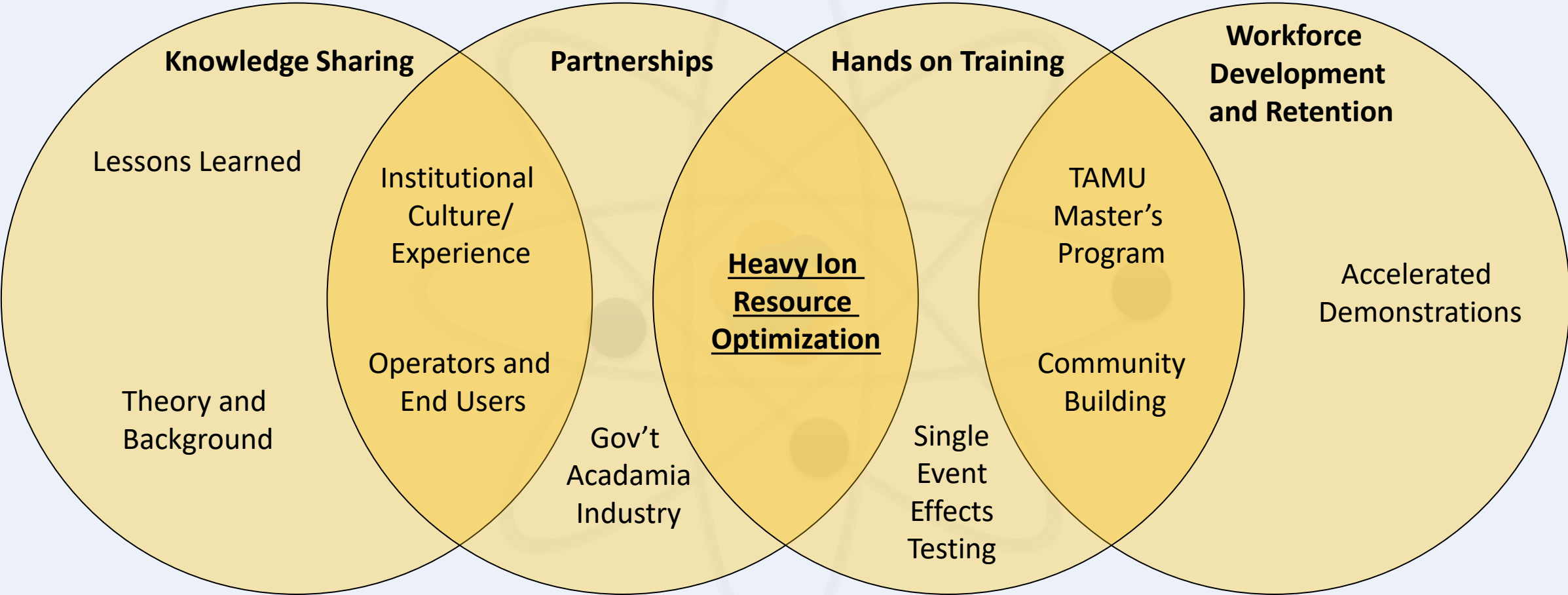
- Who's it for?
 - Engineers, facility operators, scientists, students, technicians – intended to be broadly applicable for many different roles
- Why's it needed?
 - Government and commercial space are driving significant increases in Single Event Effects (SEE) testing demand
 - Current heavy ion accelerators have limited capacity and capability
 - More complex electronics and systems require more testing hours
- What's it about?
 - Practical journey down the beamline

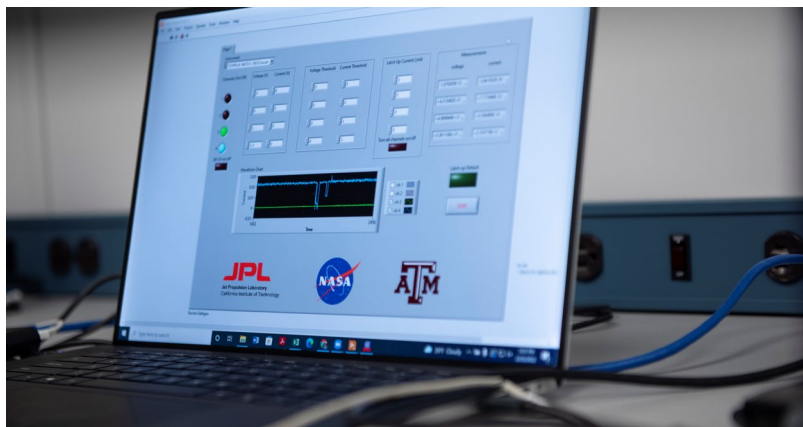
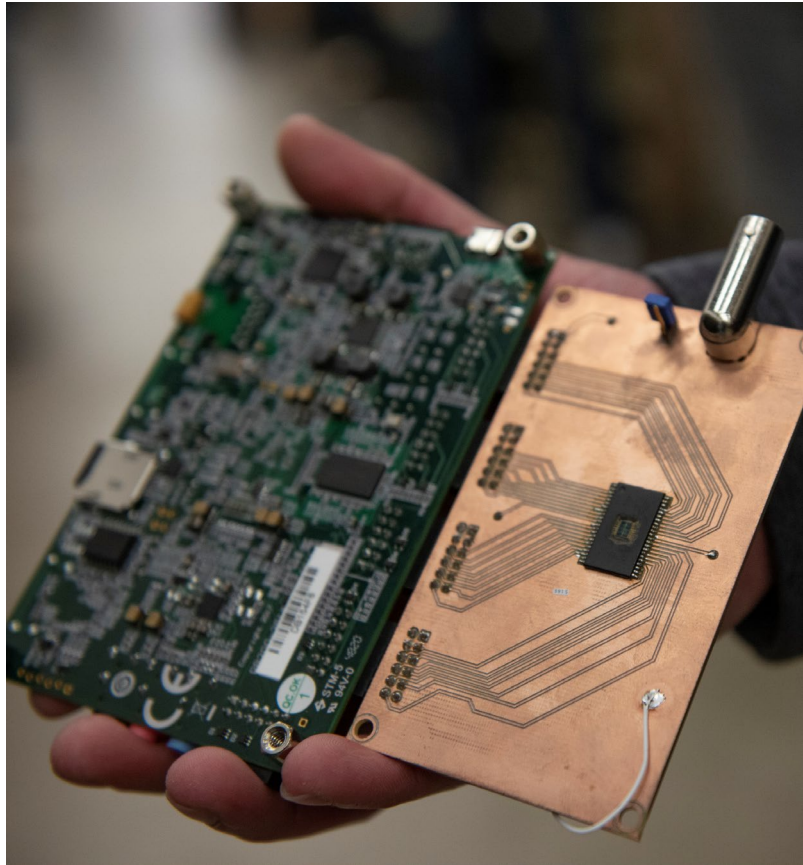
Schedule

- Held over 4 long days
- Two test campaigns
- Lectures and Hands-on work
- Intent was to cover:
 - Why we test using heavy ions
 - How we prepare and execute
 - Firsthand experience of testing
 - What types of data analysis we do
 - Shared experiences from working as a radiation effects engineer

Thursday, 24 Feb 2022	Friday, 25 Feb 2022	Saturday, 26 Feb 2022	Sunday, 27 Feb 2022
	Intro to Day 2	Intro to Day 3	Intro to Day 4
Intro to the bootcamp curriculum	Hands on: Requirement Document Discussion / Interactive Development	Facility Considerations & Differences	Hands on: SET Data Analysis
Introduction to Bootcamp: Why We Do This	Test Planning & Preparation	Data Analysis & Interpretation	Hands on: Rate Calc on Your Own with support
Break (15min)	Break (15min)	Break (15min)	Break (15min)
SEE Basics & Test Execution Definitions	Test Planning & Preparation	Data Put to Use: Likelihood & Rate Calculations	Common Mistakes: "Tales from the Cave"
Environments & SEE	Hands on: Write an RTP with the class Go over case study DPA and prep	Hands on: Plotting and Fitting SRAM data + CRÈME rate calc.	Project Saves
Lunch (1 hour)	Lunch and Learn (1 hour) - The Shape of Things to Come	Lunch and Learn (1 hour) - SoC Testing	Bootcamp Wrap up (30min)
Hands on: CRÈME (and/or OMERE?) Environment and Transport	Test Execution Refined	Single Event Transient Testing (K150)	
Test Execution Definitions	Hands on: Have the class develop a Beam Log		
Break (15min)			
Cyclotron Overview	Single Event Upset Testing (K150)		
Cyclotron Tour			
Requirements & Goals			

Bootcamp Highlights





Hands on Experience for TAMU Students

All Photos by Chris Jarvis



A unique partnership
across our institutions for
a greater goal:
Sharing knowledge from
aggregate experience.

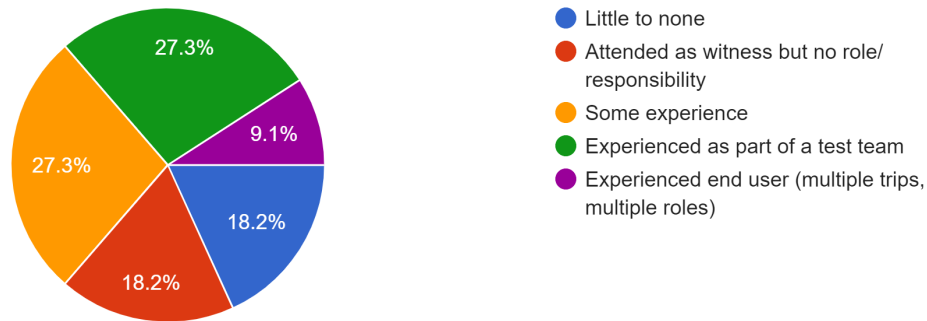
All Photos by Chris Jarvis

To be presented by M. Campola at Single Event Effects Symposium / Military and Programmable Logic Devices in La Jolla, CA May 17, 2022

Attendee survey feedback was very positive!

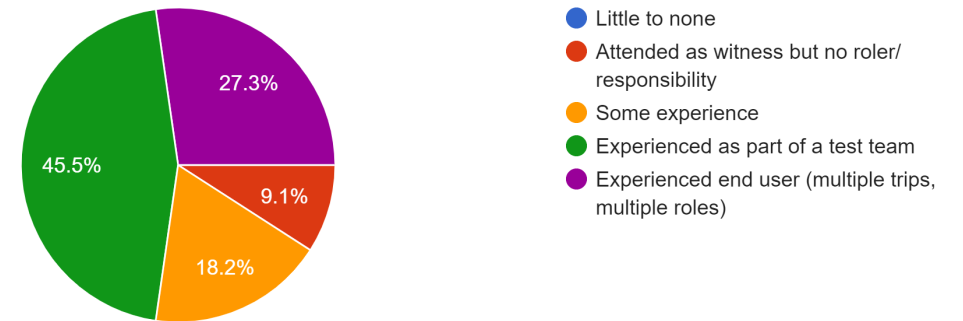
How would you list your past experience level at heavy ion facilities prior to bootcamp?

11 responses



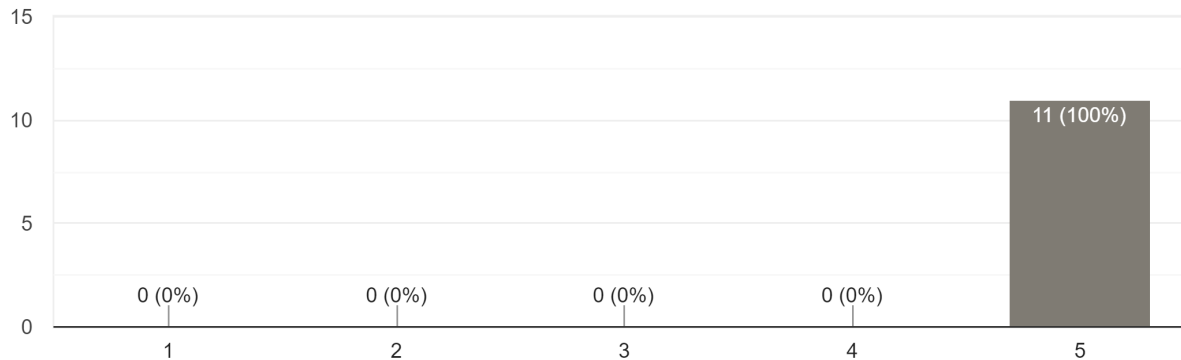
How would you list your experience level at heavy ion facilities after attending bootcamp?

11 responses



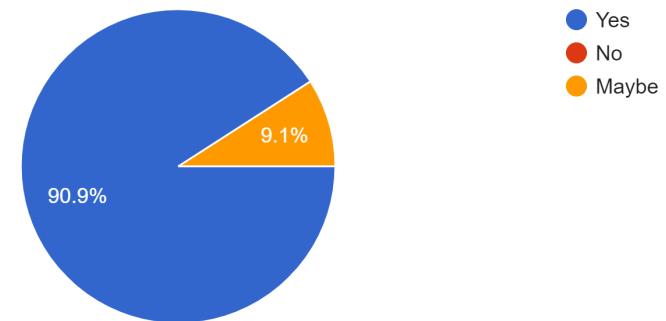
Would you recommend this to others within your network (1 not likely - 5 very likely)?

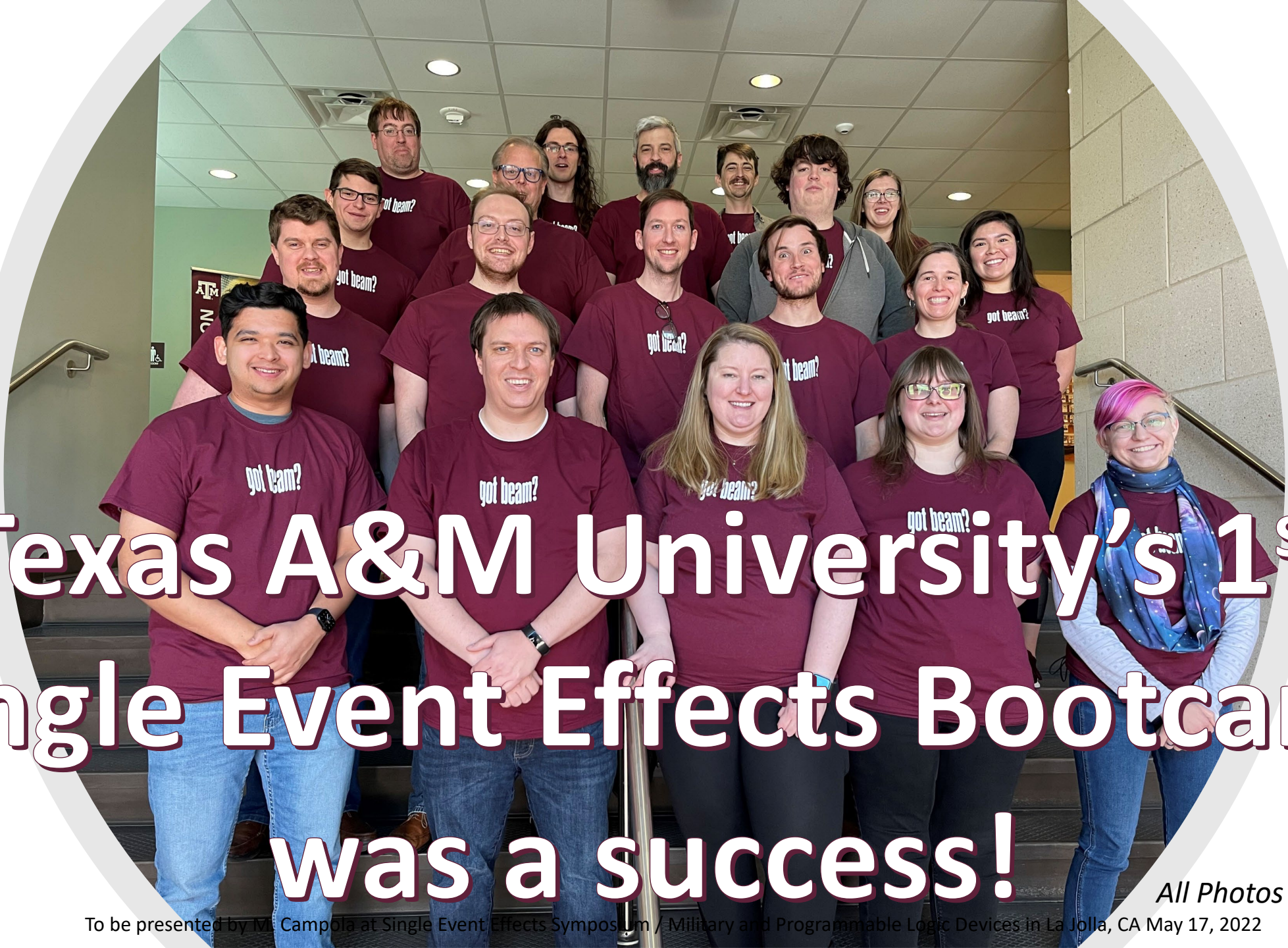
11 responses



Did the bootcamp increase your confidence in your ability to handle an SEE test on your own?

11 responses





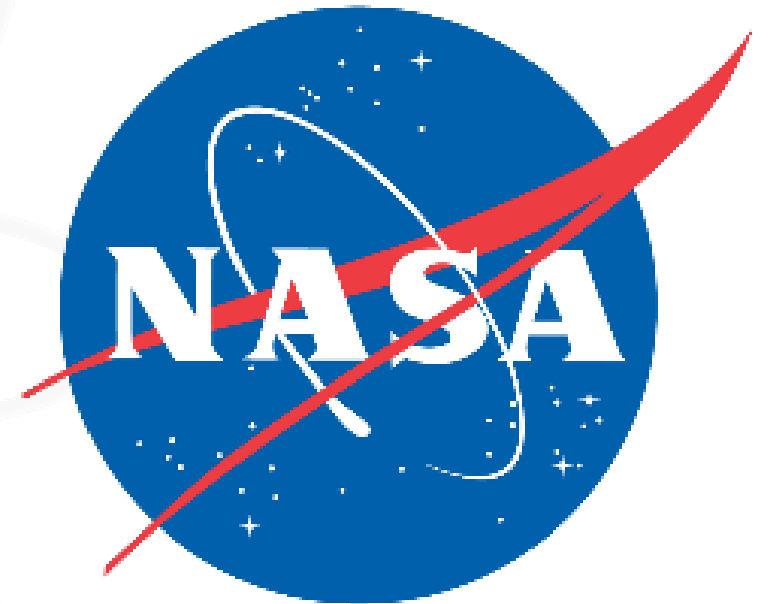
Texas A&M University's 1st Single Event Effects Bootcamp was a success!

All Photos by Chris Jarvis

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The logo for the Jet Propulsion Laboratory (JPL), consisting of the letters 'JPL' in a bold, red, sans-serif font.

Jet Propulsion Laboratory
California Institute of Technology



If you are interested
in attending or being
informed on updates
to our next rendition
let us know!

