

**CAASTRO**  
ARC CENTRE OF EXCELLENCE  
FOR ALL-SKY ASTROPHYSICS

## CAASTRO in the Classroom

### FREE video conferencing sessions for schools

'CAASTRO in the Classroom' is an outreach program designed to engage Australian school students and teachers with research scientists and is supported by a Commonwealth Government Australian Maths and Science Partnership Program grant.

#### Term 4 2015

#### 10:30 to 11.15am Tuesday 13 October **Space – Curriculum Revision**

Presenter: Eromanga Adermann, PhD Student  
Audience: Senior Secondary Physics

Join us for a curriculum-focused revision lecture—covering key topics from the HSC Physics Syllabus Module “Space”. Pre-work will be provided in advance and you are encouraged to prepare questions to ask at the end of the talk. The talk will focus on the following dot point from the New South Wales Stage 6 Physics syllabus: “Many factors have to be taken into account to achieve a successful rocket launch, maintain a stable orbit and return to Earth.”

Eromanga Adermann is a second year PhD student at the University of Sydney. Her research aims to answer two of the biggest questions in physics: “What is dark matter?” and “What is dark energy?”



#### 2:00 to 2:45pm Tuesday 27 October **Special Relativity – Curriculum Revision**

Presenter: Joe Callingham, PhD Student  
Audience: Senior Secondary Physics

Einstein’s theory of Special Relativity is a pillar of modern physics and accurately describes objects moving near to the speed of light. While mathematically elegant, Special Relativity explains situations that are extremely counterintuitive to our interpretation of the world we experience. This talk will include several examples of time dilation and length contraction. Pre-work will be provided in advance and you are encouraged to prepare questions to ask at the end of the talk.

Joe Callingham has a degree in Physics and is an Astronomy PhD student at the University of Sydney. He is a CAASTRO in the Classroom veteran, having given the highly popular ‘Special Relativity’ lecture three times in the past. Not to be missed!

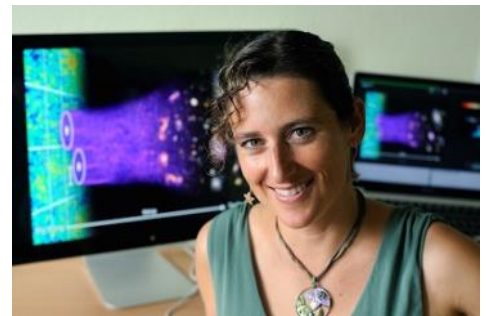


#### 2:00 to 2:40 pm Tuesday 10 November **The Big Bang – How to make a universe**

Presenter: Professor Tamara Davis  
Audience: Year 10 Science

Join a CAASTRO astrophysicist as she shares her enthusiasm for new astronomy research and makes connections between current research and the Australian Curriculum content for Year 10 (Stage 5) Science. The session will cover Science as a Human Endeavour content and the following Science Understanding content: The Big Bang Theory, the age of the universe, and the formation of galaxies and stars.

Professor Tamara Davis is an award-winning astrophysicist based at the University of Queensland in Brisbane. She spends most of her time trying to figure out why the expansion of the universe is accelerating, and thus figure out whether we can harness that acceleration to make things like hoverboards or clean energy. One of the most highly cited astrophysicists in the world, Tamara has been awarded many prizes; including the 2015 Nancy Millis Medal for Women in Science by the Australian Academy of Science. She is a highly engaging speaker with a passion for playing ultimate Frisbee.



#### Bookings

CAASTRO in the Classroom video conferencing sessions are currently delivered through the New South Wales Department of Education ‘DART Connections’ portal. Schools that are outside the NSW DoE network are welcome to join the video conferencing sessions, provided they have H.323 (or compatible) video conference equipment. For bookings, visit the DART Connections website [www.dartconnections.org.au](http://www.dartconnections.org.au).



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If you have any questions about the program, please contact the program coordinators:  
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