



Highlights:

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– Jan. 14, 2010

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Happy New Year fellow Astronomy and Space Enthusiasts,

We hope you had a wonderful holiday season. 2009 was a great year for astronomy enthusiasts as it was the 400th anniversary of the first astronomical observations made using a telescope by the famous astronomer, Galileo Galilei, and was celebrated around the globe as the International Year of Astronomy. ASX is proud to have taken part in the festivities by putting on its own astronomy-related events, none bigger than our Global Space Age Symposium last January. We also had some very successful Faces of Space lectures and observing nights in the past year.

Despite a close to IYA2009, research and advancement in the fields of astronomy and space exploration still continue, which ASX will be showcasing with two exciting events this month. First, we will have our second Faces of Space Lecture of the 2009-2010 school year on January 14th, featuring Professor John Moffat, who will speak about an alternative theory of gravity. We will follow this with our 7th Annual Symposium entitled "Brave New Worlds," where our focus will be on the search for other worlds that may be like our own. Please refer to the sections below about our January events and be sure to register for our Symposium on Eventbrite or UofT Tix.

Clear Skies,
ASX

I. ASX 7th Annual "Faces of Space" (FoS) Lecture 2

Featuring Prof. John Moffat, professor emeritus at the University of Toronto, member of the Perimeter Institute for Theoretical Physics.

TOPIC: Reinventing Gravity

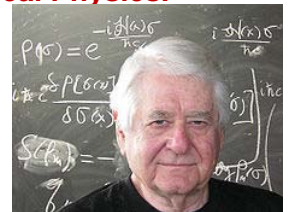
DATE & TIME: Thursday, January 14, 2010, 7PM

LOCATION: University of Toronto St. George Campus Bahen Centre (40 St. George Street), Room 1180

ADMISSION: FREE!

ABSTRACT: Professor Moffat has developed a modified theory of gravity that can explain how the universe behaves without needing to use the invisible 'dark matter'. He will give a talk on how his theory works and how it affects our understanding of black holes, dark energy, and cosmology.

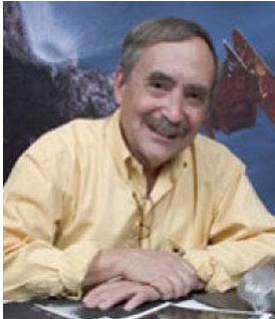
**Join us after the talk at about 8:00PM at the McLennan Physical Labs rooftop where, weather permitting, we'll do some stargazing! In case of cloudy skies, we invite you to stay with us and watch a fascinating video titled Race to the Moon: The Daring Adventure of Apollo 8.



If you did not receive this e-newsletter directly, and would like to hear about future ASX news and events, please email space.society@utoronto.ca with subject line "Newsletter Signup". We also invite you to join our Facebook group: <http://www.facebook.com/group.php?gid=2226718345z>

II. ASX's 7th Annual Symposium: Brave New Worlds

Featuring:



Prof. Peter Schultz
(NASA LCROSS)



Prof. Sara Seager
(MIT)



Dr. Firouz Naderi
(NASA JPL)



Dr. Narendra
Bhandari
(ISRO)

DATE & TIME: Friday, January 29, 2010, 6:30 PM

LOCATION: Convocation Hall, University of Toronto

ADMISSION: Students: **FREE** from eventbrite: <http://asx2010symposium.eventbrite.com>

General Public: \$20 from UofT TIX: <http://uofttix.ca/view.php?id=579>

Phone #: (416) 978.8849

****Get your tickets now since general admission price will go up January 8!**

ABSTRACT: The search for habitable worlds other than our own, from nearby in our solar system to far away exoplanets, is one of the greatest scientific endeavors of human history. The discovery of many exoplanets in recent years as well as the astonishing discovery of water on the moon has propelled this quest to the forefront of today's scientific research. With these discoveries in mind, ASX is pleased to present a truly inspiring cast of speakers who are at the leading edge of this field. Please come out on January 29th to hear these speakers talk about their latest work and accomplishments as well as their perspectives on the search for other worlds and space exploration.

III. Help Support ASX (Sponsors and Volunteers Needed)

One of the greatest things that ASX offers is providing FREE events to students (and most events free to the public) thanks to our generous sponsors. Here are several ways you can help support your favorite space organization:

1. Support ASX via sponsorship or in-kind donation, or by referring us to someone who is interested in sponsoring ASX and in turn reach out to our members and audience.

2. Become a volunteer for the upcoming Symposium.

Our Annual Symposium is U of T's largest annual student-run event. It is a truly inspiring event where we bring prominent speakers in the fields of space exploration and astronomy to speak



before a large student and professional audience. In order to run this event smoothly, we need your support. If you would like to help us out at symposium, or for any other ASX events, please email us at space.society@utoronto.ca and we will contact you about volunteering. There are a wide variety of tasks that you could help us with, including event postering, ticket-taking, and crowd control. This can be a great resume opportunity, and you may even to meet speakers and other leaders in the astronomy and space fields.

IV. The Sky This Month

Planets and the Solar System

The generally accepted date of Galileo's discovery of the four largest moons of Jupiter (Io, Ganymede, Callisto, and Europa) is January 7, 1610. If you have a set of binoculars or small telescope, you can celebrate the 400th anniversary of this event by using these to find the moons the same way Galileo did. January however signals the end of the dominance that Jupiter has had in the sky the last six months. Instead, Mars starts to be the brightest planet in the night. In fact, on January 27, it reaches its closest point to the earth of the year, and on the 29th is at opposition, so that it can be viewed the entire night.

January 15 marks the first solar eclipse of the year. This eclipse is peculiar as it will be an annular eclipse, meaning that the moon is near apogee (farthest point from earth) and appears smaller than its normal size. Because of this, it will not completely cover the sun, but will rather let a thin ring of sunlight shine around it. This eclipse will be seen from the eastern hemisphere.

Stars and Shooting Stars

The Quadrantid Meteor Shower peaks on January 3rd, yielding up to 90 meteors per hour. This shower is localized in the constellations Hercules, Bootes, and Draco. Normally, meteor showers are named after the region of the sky in which they emanate from, however the constellation, Quadrans Muralis, for which it is named no longer exists on star charts. Due to the recent full moon on December 31st, viewing conditions for this meteor shower are not optimal this year.

Observing Calendar:

January 3rd: Earth reaches perihelion (closest point to sun).

Also, peak of Quadrantid Meteor shower occurs.

January 7th: 400th anniversary of Galileo's discovery of Jupiter's moons.

January 15th: Annular eclipse occurs in eastern hemisphere.

January 27th: Mars is closest to earth at 61.7 million miles.

January 29th: Mars is at opposition, or on opposite side of sun from earth.

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

V. Other Upcoming Astronomy/Space Events (free unless specified)

Wednesday, January 13, 2010, 7:30 PM

RASC Evening Astronomy Presentations at the OSC

LOCATION: [Ontario Science Centre](#), Imperial Oil Auditorium (770 Don Mills Rd)

MORE INFO: <http://toronto.rasc.ca/content/upcomingmeetings.shtml>





Tuesday, January 26, 2010, 7:30 PM (Not a free event)

Centre for Inquiry Public Lecture

“The Great Time Debate”

Featuring Cosmologist Dick Bond, Physicist Lee Smolin, and Philosopher James Robert Brown

LOCATION: Ontario Institute for Studies in Education (OISE) Rm. G162

MORE INFO: http://www.centerforinquiry.net/ontario/events/the_great_time_debate_cosmology_dick_bond_physicist_lee_smolin_philosopher/

Tuesday, January 19, 2010, 7:30 PM

Canadian Space Society – Toronto Chapter January 2010 Lecture Night

“Disaster Risk Evaluation and Management”

Featuring Syd Shere, Program Manager- COM DEV

LOCATION: [Canadian Air & Space Museum](#)



VI. International Space News

Kepler Mission Starts Finding Planets

The discovery of five new planets made by NASA's Kepler Space Telescope was announced this week by researchers at the NASA Ames Research Center. Kepler was launched last March to find earthlike planets by measuring the light curve dips from the occultation of planets around various stars. Based on data from its first 43 days of observation, the Kepler has been able to pick out five hot giants, comparable in size to the solar system's gas giants. Each planet orbits its parent star with periods less than five days which is why these planets have been the first to be found, as numerous transits have been recorded in the 43 day period. While none of these planets are the earth-like rocky worlds that Kepler was designed to find, it should be noted that based on estimates made by the Kepler team, such a planet of earth-like size and period of orbit can take around three years to confirm.

More info: <http://www.scientificamerican.com/article.cfm?id=kepler-five-extrasolar-planets>

Mars Rover Spirit May be at End of Long Journey

The Martian Rovers, Spirit and Opportunity, landed successfully on the Red Planet in January of 2004. Neither was expected to be in service for more than 90 days but both have outperformed, to say the least, as both rovers have been in operation to this day. However, the life of Spirit is now in doubt, as nine months ago it ran into a sand trap where it has been stuck. Multiple wheels have also become unstable or stopped working. Without power for movement, the rover's NASA team has not been able to position the robot's solar panels towards the sun to collect heat as Martian winter approaches. If this cannot be achieved before all power is lost, Spirit may be gone for good. However, the rover has yet to completely stop relaying scientific data. As it has been churning the ground to break free from the sand trap, it has found sulfates in the Martian surface, which could have been formed by steam vents, implying the possible existence of water.

More Info: <http://www.astronomy.com/asy/default.aspx?c=a&id=8937>

For national space news, refer to CSS discuss lists at <http://www.css.ca/mailman/listinfo/discuss>.
CSS Facebook group: <http://www.facebook.com/group.php?gid=12706081197>