



Presidents Message - October, 2010

50th Year of the laser and Astronomical Advances

The laser was born from the ideas and technical innovations of three physicists. Albert Einstein, the erudite mathematical physicist, developed the theoretical prediction of spontaneous emission in 1916. Then Charles Townes, the experimentalist, began building the maser in 1953 that later morphed to include visible wavelengths. All this allowed Theodore Maiman of the Hughes Research Lab to invent the first working laser using a ruby crystal in 1960. Laser and maser are cool acronyms for light/microwave amplification by stimulated emission of radiation. The first laser sent out its monochromatic and coherent light on May 16, 1960 and the innovation and application of this unique form of light has spawned a revolution across numerous fields. The laser has made a significant impact in the field of astronomy. Among the many technical advances the laser has made are: 1.) Geoscience Laser Altimeter System (GLAS)-Operated by NASA to determine sea levels, cloud structure, and ice-sheet topography of Earth; 2.) Light detection and Ranging (LIDAR)-these system measures lunar distances with millimeter precision to the extent of testing the law of general relativity; also on the Mars Laser Altimeter (MOLA) along with the Mars Global Surveyor for topographic surveys of the red planet and used to detect snow in the Martian atmosphere ; 3.) Laser Guided Star System is a tremendous application of a pulsed and continuous dye laser tuned to the shield of sodium atoms that naturally exist at about 90 km in Earth's mesosphere. The laser beam gets absorbed by the sodium atoms that fluoresce and reemit light back toward the telescope detector. This light passes through the same atmosphere that the object does and therefore can detect distortions very quickly. The atmospheric distortions are compensated for by rapid changes in the shape of the telescope mirror and thus canceling out most defects allowing for vastly improved seeing for imaging space objects. By the way Charles Townes ultimately shared the Nobel Prize in Physics in 1964 for "*fundamental work in the field of quantum electronic.*"

Robert D. Collier, VP-WNAS

September 2010

September meeting...for the minutes:

- Professor Collier reported the camera for the BRC was being repaired
- Gary Cole was offering a 1 credit class "Spectroscopy, the Birth of Astrophysics"
- The radio telescope's counter-balance was successfully attached. More supplies were ordered.

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Speaker info for the ***Tuesday, October 19, 2010 @ 7pm***membership meeting:

Dr. Steve Gillett, planetary geologist.
The title of his lecture... "Asteroids"

Events Calendar

~ October 2010 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Moon Last Quarter	2 Star Party
3	4	5	6 Moon @ Perigee	7 New Moon	8	9 Dark Skies Star Party
10	11	12	13	14 Moon 1 st Quarter	15	16 Star Party
17	18 Moon @ Apogee	19 <i>WNAS Meeting 7pm JCDO</i>	20 Comet Hartley 2 Closest approach to Earth	21 Orionids Meteor Shower	22 Orionids Meteor Shower	23 Star Party Full Moon
24	25	26	27	28	29	30 Star Party Moon Last Quarter
31	Notes:					
~ November 2010 ~						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 Juno-Moon Occultation	2	3 Moon @ Perigee	4	5	6 Dark Skies Star Party New Moon
7	8	9	10	11	12	13 Star Party Moon 1 st Quarter
14	15 Moon @ Apogee	16 <i>WNAS Meeting 7pm JCDO</i>	17 Leonids Meteor Shower	18 Leonids Meteor Shower	19	20 Star Party
21 Moon Full	22	23	24	25 Partial Lunar Eclipse- Antarctica	26	27 Star Party
28 Moon Last Quarter	29 Juno-Moon Occultation	30 Moon @ Perigee	Notes:			