



## Vice-President's Message – November 2013

### A Tribute to: Niels Bohr and the Model of the Hydrogen Atom

It would be a major oversight not to highlight the breakthrough research of Danish physicist, Niels Bohr (1885-1962) from 100 years ago this year. His development of a model for the simplest of all the atoms in 1913, at the Cavendish laboratory in Cambridge, England, initiated a paradigm shift and inspired a scientific revolution. In 1898, J.J. Thompson discovered the electron and Earnest Rutherford in 1911, correctly interpreted his famous alpha ray scattering experiments by discovering a microcosm of dense positive charge imbedded within thin gold foils.

The evidence of structured matter was increasing when Bohr and Rutherford published three papers concerning the atomic structure of matter. Bohr's major insight was the idea of quantum jumps or electron transitions that are revealed in the "fingerprints" known as atomic spectra. His discovery of the physical nature of hydrogen solved part of the problem that was, heretofore, lacking in understanding; just how light from a gas actually creates emission and absorption lines discovered earlier by German physicist, Gustav Kirchhoff in 1859.



Rosette Nebula

The Bohr model has been improved upon, drastically, over the interceding years that followed to explain other atomic spectra. Today astronomers both professional and amateur can accurately describe the plethora of observed H I (neutral hydrogen) and H II (glowing red hydrogen alpha) regions in interstellar nebulae and in the accretion disk of stars by applying the same rules Bohr created with his hydrogen model. Modern day astronomers have developed the atomic theory of matter, "standing on the shoulders of giants," like the pioneers Bohr and Rutherford. Bohr formulated a physical understanding of spectra prior to the quantum era of the twentieth century. The past being our guide, the next 100 years will surely launch us to greater heights of understanding in the astronomical science of spectral analysis. Thanks Professor Bohr for an enlightening ride!

Prof. Robert Collier, VP WNAS and Director-JCDO

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### **October 2013 Meeting Minutes**

Mike gave a lecture on Ancient Astronauts




Monthly Membership Meeting 7:00PM, Tuesday, November 19, 2013

**"Where Do Atoms Come From?"**  
**Subtitle: *The Relevance of Astrophysics***  
**By Professor Robert Collier, JCDO Director**

~ November 2013 ~

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Hybrid Solar Eclipse ... Start at the Atlantic Ocean off the eastern coast of the United States and move east across the Atlantic and across central Africa					1	2 Dark Skies Star Party
3 New Moon  Hybrid Solar Eclipse	4 Taurids Meteor Shower	5 Taurids Meteor Shower	6	7	8	9 Star Party
10 Moon 1 <sup>st</sup> Qtr 	11	12	13	14	15 RECON 18:00 hrs to 20:00 hrs (Pluto)	16 Star Party Leonids Meteor Shower RECON 20:00 hrs to 22:30 hrs (607 Jenny)
17 Full Moon  Leonids Meteor Shower	18	19 WNAS Meeting 7pm	20 RECON 20:00 hrs to 22:00 hrs (67 Asia)	21	22 RECON 20:00 hrs to 22:00 hrs (26541 Garyross)	23 Star Party
24	25 Moon Last Qtr 	26	27	28 Comet ISON Closest Approach to the Sun	29	30 Dark Skies Star Party RECON 20:30 hrs to 23:00 hrs (418 Alemannia)

~ December 2013 ~

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3 New Moon 	4	5	6	7 Star Party
8	9 Moon 1 <sup>st</sup> Qtr 	10	11	12	13 Geminid Meteor Showers	14 Star Party  Geminid Meteor Showers
15	16	17 No WNAS Meeting Full Moon 	18	19	20	21 Star Party  Winter Solstice 17:11 UTC Ursids Meteor Shower
22 Ursids Meteor Shower	23	24	25 Moon Last Qtr 	26	27	28 Dark Skies Star Party
29	30	31	Notes:			

