



Spectroscopy Society of Pittsburgh

November Meeting

Wednesday – November 19, 2014
Duquesne University



5:30 PM	Technology Forum Speaker's Presentation - Laura Falk Hall located in Mellon Hall
5:30 to 6:30PM	Social Hour - City View Café (6th Floor of Union)
6:30PM	Dinner - City View Café (6th Floor of Union)
8:00PM	Business Meeting– Laura Falk Hall located in Mellon Hall
8:15PM	Technical Program Speaker's Presentation– Laura Falk Hall located in Mellon Hall

Deadline for Dinner Reservations 11/13/14 at NOON

[On-line Reservations](#)

TECHNICAL PROGRAM - 8:15 PM

Arthur Kosowsky -- Professor of Physics and Astronomy at the University of Pittsburgh
“Microwave Background Polarization and the Beginning of the Universe”

We live in a universe whose properties are remarkably well described by a very early epoch of accelerating expansion, termed inflation. One generic prediction of inflation is a relic background of stochastic gravitational radiation. These gravitational wave perturbations leave a distinctive imprint in the polarization of the microwave background. In March 2014, the BICEP experiment at the South Pole announced the detection of this signal for the first time, although subsequent analysis cast doubt on whether polarized emission from dust in the Milky Way galaxy might be contaminating the signal. I will review the current state of observations and give an overview of upcoming observational efforts at measuring the polarization spectrum which will definitively distinguish the cosmological and galactic signals. If the BICEP signal has a significant cosmological component from inflation, this opens the door to the remarkable possibility of detecting the gravitational radiation background directly with a space-based laser interferometer. Such a measurement would provide a precision probe of physics at energy scales a trillion times higher than those at terrestrial accelerators.



Arthur Kosowsky received his Ph.D. in physics from the University of Chicago in 1994, was a Junior Fellow in the Society of Fellows at Harvard from 1994 to 1997, and was a faculty member at Rutgers University before joining the faculty of Pitt in 2005. He is the author of many scientific papers about the universe, and particularly how the cosmic microwave background radiation tells us about the properties of the universe and about fundamental physics. When not thinking about the cosmos, he can often be found playing his antique grand piano or bicycling around Pittsburgh. He is married to Theresa Brown, who is a nurse in Pittsburgh and writes the Bedside column for the New York Times.

TECHNOLOGY FORUM - 5:30 PM

Ken Kobus

“Allegheny Observatory: The Selling of Time and Beginning of EST”

This presentation will focus on the development of the American Time System and the role played by Pittsburgh and Pittsburghers in its formation. This city, the Pennsylvania Railroad and Allegheny Observatory were important players in creating the ways in which accurate time was determined and distributed to the nation. There were little quirks and interesting sidebars that came along for the ride. For instance: did you know that at one time the Central Time Zone began at Pittsburgh?



Ken Kobus holds a B.S. in mechanical engineering from the University of Pittsburgh. He has been employed in the steel industry his entire life at the Pittsburgh Works of J&L/LTV, the South Chicago Works of LTV and the Clairton Works of USS. At Pittsburgh Ken was the Area Manager of the Byproduct Chemical Plant, in Chicago, the Area Manager of Coke Production & Coal Handling and at Clairton the Process Safety Manager. Ken retired after nearly 45 years of service. Astronomy has

been a life-long hobby and he has been a member of the Amateur Astronomers Association of Pittsburgh for 50 years. He has written books on the Pennsylvania railroad and the Pittsburgh steel industry.

Dinner Reservations:

Please register on-line at <http://www.ssp-pgh.org/monthly-meeting-rsvp/> to make dinner reservations NO LATER THAN Thursday, November 13, 2014 at noon. This month's entrée will be Pan-Seared Red Snapper or a vegetarian option. Dinner will cost \$10 (\$5 for students) and checks can be made out to the SSP. If you have any dietary restrictions, please indicate them when you RSVP.

Parking Instructions:

The Duquesne University Parking Garage is located on Forbes Avenue. Upon entering the garage, receive parking ticket and drive to upper floors. Pick up a parking chit at the dinner or meeting.