

SEMINAR IN PHYSICS

FRIDAY, February 19, 2016

3:30-4:25 · Ross 0220

~ Refreshments! ~

Acoustic Levitation

Alexandra Briggs, UNC Physics student

Acoustic levitation is a technique that uses intense sound waves in order to suspend small amounts of material in a medium, usually air. This idea is based in nonlinear acoustics, which deals mostly with sound waves that are above audible hearing range and have high amplitudes. This technique can be used in many fields of research, such as container-less processing for volatile chemicals and researching the physics behind foam and how it works in a micro-gravity situation. There are also new areas of research that use acoustic levitation to aid in creating new materials and using this sort of levitation to move hovering objects, which would be useful in the electronics industry.

The Origin of the Universe

Stephen Lowery, UNC Physics Student

From our humble beginnings using geocentric models to today's modern Big Bang theory, our inquisitive nature has driven us to try to make sense of our place in the universe. Every leap in our understanding of physics and astronomy has also helped develop the idea of where we, and everything else, come from. Measuring the Doppler shift of a galaxy in the early 20th century ignited the idea of an expanding universe. This presentation will cover the evidence, new and old, that has made the Big Bang the leading theory behind the origin of our universe.

Visualizing Sound

Stefan Lamb, UNC Physics Student

A term coined for the visualization of sound using a Cymascope is Cymatics. Cymascope is used often today in the research of Dolphin "language" and are currently being employed to develop a lexicon of images that represent the array of ultrasound patterns created from the clicking sound made by dolphins. Cymatics is the term used to describe making sound visible using a device or medium. We are currently building one of these devices that we wish to use to analyze different sound patterns, both singular frequency and more complex combinations of sound like music and sounds from nature.