

## York University Internship in Biophysics 2013

The Department of Physics and Astronomy at York University has generously provided a Summer Internship in Biophysics at its campus in north Toronto for our 1<sup>st</sup> place prize winner. If the 1<sup>st</sup> place contestant declines the internship it will be subsequently offered to the 2<sup>nd</sup> place winner and so on and so forth.

The intern will play a significant part in the following scientific research project while experiencing university life:

### "From Sound to Synapse: Biophysics of the Ear"

- Supervisor: Professor Christopher Bergevin, Department of Physics and Astronomy, York University
- Remarkably, the ear not only responds to sound, but generates and subsequently emits it as well. These sounds, called otoacoustic emissions (OAEs), provide a valuable non-invasive probe into the function of the ear. The student will work with Professor Bergevin exploring a range of topics relating OAEs to the biophysics of the ear, including acoustics, transduction, and mathematical modeling.
- The student will focus chiefly on the development of an electrical circuit that serves as an analog for processes occurring in the ear relevant to the generation of OAEs. This (nonlinear oscillator) model will serve to expose the student to complexity in nonlinear systems as well as exposure to practical skills in electronics and data acquisition/analysis. The student will also help perform actual OAE experiments.
- The student will have a chance to work with other (university) students in the lab.

If the intern resides within the Greater Toronto Area, then the Internship will be for a minimum of 3 weeks up to a maximum of 6 weeks (at the discretion of the intern) during June and/or August of 2013 with a salary of \$400/week (Prof. Bergevin will be traveling for collaborations for the bulk of July).

If the intern resides outside of the Greater Toronto Area, then the internship will be for 3 weeks during August of 2013 with a salary of \$800/week. The increase in the wage is intended to help to offset living costs while staying within the Greater Toronto Area (either on or off campus). Information regarding York University accommodations is available at <http://studenthousing.info.yorku.ca/acs/>.

In all cases, the internship may be terminated at the discretion of the supervisor if it is felt that the intern is inappropriately placed.