CAP Lecture Tour
UNB Physics Department

Tightly squeezing light in small spaces

Pablo Bianucci
Physics Department
Concordia U.

Can we make lasers faster and more efficient? Can we explore the interaction between quantum mechanical matter and light? Can we detect the presence of a single virus in a drop of water? Can we play with the propagation speed of light pulses? It turns out that we can do that, and much more, by trapping light very tightly. Thanks to advances in fabrication technology it is now routinely possible to make structures that can keep light confined in microscopic spaces. When this happens, the interactions of light with matter can change in both quantitative and qualitative ways and we can harness these changes to our advantage. The workhorse device for trapping light at such small scales is the optical micro-resonator. I will introduce the working principles of different optical micro-resonators, how they can be fabricated, and some of the cool phenomena that have been demonstrated with them.

Tuesday March 19, 2019, 1:15--2:15 pm in P204.
Colloquium tea in P203 beforehand