



Physics Seminar

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Friday January 9, 2009
PSC 3046
4:00 pm

Sleep of Death: A Monte Carlo Approach To Treating Sleeping Sickness

Sleeping sickness is endemic in Sub-Saharan Africa. This disease is caused by micro-organisms found in the saliva of the tsetse fly. These organisms defend themselves using a coat of charged polymer 'hairs.' Using Monte Carlo methods, the ability of a peptide to penetrate the defenses of these micro-organisms in order to kill the organism can be modelled. By determining a density of these polymers that leads to optimal penetration, the most effective means of peptide delivery could be determined. This initial talk will discuss details of the peptide to be used as well as the Monte Carlo model used to simulate the organism's surface. In addition, preliminary results demonstrating how the model is consistent with theory, including the Gouy-Chapman equation for screened electrostatics, will be presented.

For more information on upcoming seminars, please visit:

<http://physics.stfx.ca>