



KOÇ UNIVERSITY

Science – Math Seminar

Speaker: Claude Dion

Department of Physics

Umea University, Sweden

Date: Thursday, Dec. 30, 2004

Time: 14:00 (Tea and cookies will be served at 13:30 at the lounge in front of Room SCI Z42)

Place: ENG B15

Title: Optimally Controlled Field-Free Orientation of the Kicked Molecule

Abstract:

Molecular orientation is a challenging control issue covering a wide range of applications from reactive collisions, high order harmonic generation, surface processing and catalysis, to nanotechnologies. Our recent research has shown that an efficient way to obtain field-free molecular orientation is to use a train of short electromagnetic pulses. Each individual pulse imparts a kick to the molecule which then orients. By using evolutionary strategies (genetic algorithms), we have now demonstrated that optimal orientation can be obtained using only 2 kicks. The understanding of the mechanism rests upon a molecular target state providing the best efficiency versus duration of orientation compromise. The limited number of kicks, the robustness and the transposability to different molecular systems advocate in favor of the process when considering its experimental feasibility.

Please visit <http://sci-math.ku.edu.tr/> for a schedule of upcoming Science - Math seminars.