



You are cordially invited to a
Thesis Defense

Entitled

**From Planetesimal Discs in Wide Binaries to the Outer-
Remnants of Planet Formation**

by

Antranik Sefilian

Physics Department, American University of Beirut

The talk is structured into two interrelated parts, touching on the dynamical evolution of ensembles of small bodies whose motion is strongly affected by massive perturbers (in addition to their own self-gravity). The setting evolves from the early stages of planet formation in wide binaries, to observed features in the remnant icy bodies in the outer confines of our Solar System. In the former case, one is concerned with processes that shelter planet formation pathways from the disruptive role of massive binary companion. In the latter, one is seeking a shepherding mechanism for a crew of small bodies that orbit the Solar system, beyond Neptune, and that appear spatially aligned, with popular (and I should add spectacular) mechanism appealing to a 9th Planet to get the job done. On the planet formation end, we re-examine critically the proposed role of a massive gaseous disk in structuring the dynamics of circumstellar protoplanetary disks in wide binaries, away from perturbed and self-destructive state, recasting known results in a nonlinear framework which reveals their limitation. As it turns out, the machinery we develop, and insights we gain in the process prove particularly useful for us to propose, explore, and substantiate an alternative to Planet 9 in a relatively massive disk of trans-Neptunian bodies, a small fraction of which is caught into the observed aligned state.

Date: Thursday, April 27, 2017

Place: Rm. 219

Time: 1:00 p.m.