



University  
of Victoria

# PHYSICS AND ASTRONOMY COLLOQUIUM (In-Person)

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## “Magnetized Fingering Convection in Stars”

### Abstract

“Fingering convection (also known as thermohaline convection) is a process that drives the vertical transport of chemical elements in regions of stellar radiative zones where the mean molecular weight increases with radius. It is particularly relevant in RGB stars, and in stars undergoing surface accretion. In the past 10 years, substantial progress has been made to quantify the process using simplified models validated by 3D direct numerical simulations (DNS). In this work, I will first review what is known about it in the absence of magnetic fields, and will then show that a large-scale magnetic field can greatly enhance the amount of transport by this instability. I will present a similarly simple model to account for the effect of the field, which is again validated against DNS. I conclude with some interesting prospects for stellar modeling.”

Wednesday, October 25th, 2023

3:30 p.m. PST

ECS 125