

SAN DIEGO STATE UNIVERSITY DEPARTMENT OF PHYSICS AND DEPARTMENT OF
ASTRONOMY COLLOQUIUM

Speaker: Prof. Norman Murray (University of Toronto)

Topic: Star Formation on Scales Large and Small

Time: 3:00 PM, Friday, January 20, 2017 (refreshments served at
2:45 PM)

Place: Room 215, Physics-Astronomy Building (PA-215)

Abstract:

Star formation is a complicated and messy process that has until recently resisted our attempts at understanding it. Over the last several years, this situation has changed, and it is now possible to explain some well known empirical relations, the Kennicutt-Schmidt (KS) relation, a fairly tight correlation between the galaxy scale star formation rate and the gas surface density, being the best known. I will describe how the KS relation arises from the requirement of hydrostatic equilibrium, combined with the momentum production of young stars. I will then go beyond the KS relation, to show how the correlation between star formation and gas surface density breaks down on small (sub-kiloparsec) scales, using data from observations of our own galaxy, the Milky Way. Finally, I will propose a theoretical explanation of how star formation on small scales proceeds, using both simple analytic models and 3D magnetohydrodynamic simulations.