

# UWSP PHYSICS & ASTRONOMY COLLOQUIUM

**Friday, December 2, 2016 at 2:00 p.m. in A-107 SCI**

*Refreshments will be served beginning at 1:45 p.m.*

## **Snakes and Bubbles: Massive Stellar Nurseries in the Milky Way**

**William Dirienzo**

*UW-Sheboygan*



Massive stars have profound effects on the interstellar medium that lead to chemical and dynamical evolution of the gas. This contributes to galaxy evolution and may also trigger new star formation. The physical conditions of massive star forming environments, and thus the formation mechanism, have been historically less well understood than their lower mass counterparts. This talk discusses investigations into massive star formation, primarily in two different phases of the evolution of massive star forming regions. First are the environments of H II regions powered by massive stars and testing for newly triggered star formation. Triggering may be an important mechanism through which massive star formation propagates through a cloud, contributing to the observed clustering of massive stars. Second are Infrared Dark Clouds (IRDCs). IRDCs harbor the earliest phases of massive star formation, and many of the compact cores in IRDCs, traced by millimeter continuum or by molecular emission in high critical density lines, host massive protostars. The internal structure and kinematics of the IRDCs include velocity gradients, filaments, and possibly colliding sub-clouds that elucidate the formation process of these structures and their protostars. It appears that these IRDCs are still being assembled from molecular gas clumps even as star formation has already begun. The ongoing work in this field and possibilities for the future will be discussed.

*William Dirienzo is an Assistant Professor of Physics and Astronomy at the University of Wisconsin-Sheboygan and the University of Wisconsin Colleges Online. A native of Wisconsin, he has a BS from the University of Wisconsin-Madison and a MS and a PhD from the University of Virginia. Prof. Dirienzo's research specialty is observational massive star formation in the Milky Way galaxy. He uses radio and infrared observations of nebula to study the ways they form the largest stars from gas and dust.*