Physics and Astronomy Seminar
Spring 2009

Forbidden Lines from Colliding Winds

Richard Ignace
Department of Physics and Astronomy
ETSU

Massive stars dominate their environments in a number of ways, including the influence of fast, dense stellar winds. These winds can move at speeds well in excess of 1000 km/sec, losing mass at rates typically in the range of a solar mass every million to billion years, sometimes even in just 100,000 years for extreme cases. Of particular interest are binary massive stars where the two stellar winds interact to form a bow shock. This leads to X-ray emissions and sometimes even dust formation. It also leads to a spiral flow morphology for the wind interaction region. This talk considers how that region affects observed line emission profiles from "forbidden" (fine structure) lines that form over a large range of radii in the flow, and how observed profile shapes can be used to recover wind and orbital parameters. Applications to two systems – gamma Vel and WR 147 – are presented.

Monday, April 20, 2009, 4:00 pm
Brown Hall 261

Refreshments served at 3:45 pm