

COLLOQUIUM

4:00 P.M.

SEPTEMBER 20, 2007

LYTLE HALL 218

A Mathematical Model of Gasses
(*Gasses Are Beautiful, Too!*)

DR. PERRY Y. C. LEE

KUTZTOWN UNIVERSITY OF PENNSYLVANIA

ABSTRACT

A mathematical model used for predicting "gaseous radiation" (also known as thermal radiation or simply heat) when "hot" gases are present in a system is presented. In fact, quantifying gaseous radiation in a system that contains these "hot" gases is made difficult by the gases' highly "erratic" absorption coefficient spectra (which are physical properties of these hot gases). Also, due to this highly erratic behaviour, computational effort that is required to accurately quantify gaseous radiation even for very simple cases is enormous. For a practitioner (or end-user), a good mathematical model that is both accurate and practical is highly desired.

I will present several cases where we are influenced by gaseous radiation. I will then explain why an accurate model is required and why the computational effort is enormous. Then I will introduce an elegant mathematical model (hence, its beauty) that was developed to predict gaseous radiation accurately, and at the same time, requiring less computational effort than previous models.

3:30 p.m.
refreshments served**4:00 p.m.**
talk begins