

1086-05-1945 **Emilie Hogan*** (emilie.hogan@pnnl.gov). *Applications of Graphs and Partial Orders at PNNL*. Preliminary report.

At Pacific Northwest National Laboratory I am studying knowledge systems (ontologies) for information discovery, observing computer networks to detect intruders and measure a level of risk for an attack, and modeling the power grid to aid engineers in predicting how it will evolve. In this talk I will describe the important role that discrete structures like graphs and partial orders play in each of these application areas. I will discuss how we are modeling the structures of interest, searching for certain types of substructures, and measuring distances within the structures. (Received September 24, 2012)