Physics Applications for Nuclear Incident Response  JENNIFER CHURCH, Lawrence Livermore National Laboratory — Radiation detection plays a significant role in global security and nuclear incident response. Gamma-ray and neutron measurements are key elements in this capability, greatly improving interpretations of real-world situations. An overview of nuclear incident response efforts and applications will be presented. This work is performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.