

Abstract for an Invited Paper
for the DNP10 Meeting of
The American Physical Society

Cooperative Monitoring of Reactors with Antineutrino Detectors

GREG KEEFER, Lawrence Livermore National Laboratory

The current state-of-the-art in antineutrino detection is such that it is now possible to monitor the operational status, power levels and fissile content of nuclear reactors in real-time at standoff distances of a few tens of meters, well outside of the reactor containment. This has been demonstrated at civilian power reactors in both Russia and the United States. In the last few years, the International Atomic Energy Agency has begun to consider the potential of this technology for its reactor safeguards regime. In this talk, I describe the state of the art for this application, and emphasize the natural overlap with ongoing efforts in fundamental physics to measure the oscillations of antineutrinos using reactor sources.