

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Designing Diagnostics to Survive in ITER CHRISTOPHER WATTS,
ITER Organization, ITER TEAM — Adapting diagnostics to withstand the incredibly harsh environment of the ITER D-T plasma is a formidable engineering task. Hindrances include not only the nuclear environment, but also the high radiative heat fluxes, high particle fluxes and stray ECH radiation. Strategies to mitigate the impact of these run the gamut from shielding, through recessing, through appropriate materials selection, to refurbishment. Examples include the Langmuir probe system, where individual probes are protected by passive heat shields; retroreflectors recessed into the tokamak first wall in deep, baffled tunnels; plasma mirror cleaning systems; electronics components like piezo crystals and x-ray detectors vetted for the nuclear environment. These and other ITER diagnostic system designs will be highlighted to emphasize their strategies for dealing with the ITER environment. *The views and opinions expressed herein do not necessarily reflect those of the ITER Organization.

Christopher Watts
ITER Organization

Date submitted: 11 Jul 2014

Electronic form version 1.4