Irradiation effects on potential diagnostic materials and components (abstract)

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Irradiation effects on potential diagnostic materials and components (abstract)

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Some diagnostic components in ITER will be subject to high levels of radiation (neutrons and gammas) and changes in their physical properties can result. During the ITER EDA an extensive range of tests on relevant materials, e.g., window materials, metals, and insulators, have been carried out and the changes in their physical properties have been measured. The effects examined include radiation induced electrical damage (RIED) and radiation induced conductivity (RIC) in potential insulators; radiation induced absorption and radio luminescence in potential optical materials; and changes to the reflectivity and surface properties of bulk metal mirrors. The results give a database of information which is of use to the designers of ITER diagnostic systems. Recent and planned work is concentrating on the testing of diagnostic prototypes in relevant radiation fields. The results obtained thus far will be summarized and the planned work outlined. © *1999 American Institute of Physics.* [S0034-6748(99)71401-2]

