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New measurements of (n, γ) and (n,fission) cross sections and capture-to-fission ratios for $^{233,235}\text{U}$ and ^{239}Pu using the DANCE 4π BaF_2 array¹ T.A. BREDEWEG, M. JANDEL, M.M. FOWLER, E.M. BOND, R.C. HAIGHT, A.L. KEKSIS, J.M. O'DONNELL, LANL, R. REIFARTH, GSI, R.S. RUNDBERG, A.K. SLEMMONS, J.L. ULLMANN, D.J. VIEIRA, J.M. WOUTERS, LANL, J.A. BECKER, C.Y. WU, LLNL, J.D. BAKER, C.A. MCGRATH, INL — Accurate neutron-induced reaction data are important to many issues in stockpile stewardship, nuclear reactor design and re-certification, nuclear non-proliferation and nuclear forensics. Of particular interest are the production and destruction reactions for all of the major and most of the minor actinides, including both neutron-induced capture and fission. The competition between capture and fission presents both an obstacle and an opportunity for large γ detector arrays such as the DANCE array (Detector for Advanced Neutron Capture Experiments), which cannot clearly differentiate γ -rays resulting from the two exit channels. With the addition of a high efficiency, 4π fission-tagging detector it is possible to deconvolve the two contributions to the total γ -ray spectrum. Using these tools we are able to conduct simultaneous fission/capture measurements which can simplify background treatment and other sources of systematic uncertainty. An outline of the current experimental program will be presented along with results from neutron capture measurements on $^{233,235}\text{U}$ and ^{239}Pu .

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