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Laser-Induced Nuclear Activation Studies ANDREW SIMONS, MATTHEW GARDNER, PETER THOMPSON, AWE, CHRISTOPHER ALLWORK, MICHAEL RUBERY, AWE/University of Surrey, ROBERT CLARKE, Rutherford Appleton Laboratory — A series of experimental campaigns, each designed to activate carefully selected materials, have been conducted with high-power short-pulse laser systems. These relatively new CPA laser systems can produce large bursts of X-rays, electrons, protons and other ions. Characterising the nature of these mixed radiation fields is necessary for both physics experiments and facility safety. Three campaigns, two with the HELEN laser facility at AWE and one with the Vulcan Petawatt laser at the Rutherford Appleton laboratory, were designed to accelerate protons. These protons irradiated secondary activation targets of pure foils and various optical glasses, typically those used in target chamber environments such as those found at NIF, Omega and AWE's Orion laser facility. This talk discusses these experiments and covers the production of laser-produced radiation fields, the selection of activation targets, the interpretation of the radioactive decay signals, the current status of the analysis and the future applications of this research.

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