

# ABSTRACT

The neutron capture cross sections of  $^{175}\text{Lu}$  and  $^{176}\text{Lu}$  have been measured in the energy range from 3 to 225 keV at the Karlsruhe 3.7 MV Van de Graaff accelerator. Neutrons were produced via the  $^7\text{Li}(p, n)^7\text{Be}$  reaction by bombarding metallic Li targets with a pulsed proton beam and capture events were registered with the Karlsruhe  $4\pi$  Barium Fluoride Detector. The cross sections were determined relative to the gold standard using isotopically enriched as well as natural lutetium oxide samples. Overall uncertainties of  $\sim 1\%$  could be achieved in the final results, which are about a factor of five more accurate than previous data. Maxwellian averaged neutron capture cross sections were calculated for thermal energies between  $kT = 8$  keV and 100 keV. These values are systematically larger by  $\sim 7\%$  than reported in recent evaluations.