

Thallium is widely used in *pharmaceuticals*, *electronics*, *fiber optics*, *infrared detectors* and *nuclear medicine*. However, little information is available in literature for neutron induced reactions on T1 isotopes, with many *discrepancies* among the existing experimental data, especially in the energy region above ~14 MeV.



Thus, the **aim of the present work** was to study the cross-section of the (n,2n) reaction on <sup>203</sup>Tl, by irradiating a natural TlCl pellet target with monoenergetic neutron beam at 18.9 MeV, using the **activation method.** The neutron beam was produced via the <sup>3</sup>H(d,n)<sup>4</sup>He reaction, using a Ti-T target.



The experiments were conducted at the 5.5 MV Tandem accelerator of N.C.S.R. "Demokritos".

The target and reference foil assembly was placed at approximately 1.5 cm from the tritium target, thus limiting the angular acceptance to  $\pm 23.5^{\circ}$ , where the produced neutrons are practically *isotropic* and *monoenergetic*.

The irradiated samples were placed, centered, 10cm in front of the HPGe

detector, properly shielded with lead blocks, thus reducing natural background noise.



Figure2: HPGe detector with 80% efficiency.





