

**Thermal Neutron Capture Cross Section of Chromium,
Vanadium, Titanium and Nickel Isotopes**

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The thermal neutron cross section for chromium, vanadium, titanium and nickel can be determined by measuring the pair spectrum of prompt gamma rays emitted when targets of these elements are irradiated by a thermal neutron beam. Such measurements were carried out by irradiating the natural elements mixed with a nitrogen standard (melamine) in the tangential beam hole of the IEA-R1 research reactor. The pair spectrometer efficiency calibration curve in the 1.5 to 11 MeV energy range was performed with a melamine plus ammonium chloride mixed target. The cross section was calculated for the most prominent gamma transitions of each isotope, using nitrogen as standard, and averaged over the obtained values. The resulting mean cross sections are as follows: $(4.41 \pm .08)$ b for ^{58}Ni , $(2.54 \pm .07)$ b for ^{60}Ni , $(15.2 \pm .5)$ b for ^{62}Ni , $(1.6 \pm .1)$ b for ^{64}Ni , $(4.9 \pm .2)$ b for ^{51}V , $(13.4 \pm .7)$ b for ^{50}Cr , $(.79 \pm .02)$ b for ^{52}Cr , $(18.1 \pm .7)$ b for ^{53}Cr and $(8.4 \pm .1)$ b for ^{48}Ti .