

Neutron Activation Analysis (NAA)

Neutron Activation Analysis (NAA) is a powerful technique to determine trace elements in a sample, with sensitivities which can reach parts per trillion levels and below.

Nowadays, astroparticle physics experiments require extremely low backgrounds and their need to certify detector materials to sub-ppt concentrations of natural contaminants (^{40}K , ^{238}U , ^{232}Th) is becoming a key issue. NAA therefore represents a valuable tool for material selection.

In this talk I will review the fundamentals of the technique and the multielement character of the method, with particular attention to the ingredients to be optimised for reaching high sensitivities, from the irradiation of the sample in a nuclear reactor to the preparation of the irradiated sample for the gamma measurement. Techniques to improve the sensitivities by means of coincident beta-gamma and gamma-gamma measurements will also be discussed.

Author: Dr SISTI, Monica (INFN Milano-Bicocca)

Presenter: Dr SISTI, Monica (INFN Milano-Bicocca)