

## APPLICATION OF INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS ON ICE CORE SAMPLES

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In the paleoclimate context the dust content in Antarctic ice is extremely important; physical and chemical properties of the particles deposited in Antarctica are strictly related to different climatic parameters [1,2]. Measuring elemental and isotopical properties of the extremely reduced amount of dust found in ice cores is still now a difficult challenge for the modern analytical techniques, like ICPMS and TIMS. This is particularly true in relation to interglacial periods, when dust concentration reaches the lowest levels. Here we present a new method based on instrumental neutron activation analysis (INAA) for the elemental characterization of dust entrapped in ice cores. For the first time this nuclear-chemical technique is applied to Antarctic ice core samples. In order to obtain the lowest detection limits and the entire analytical procedure was optimized, paying great attention to reagents purity and to contamination sources during sample preparation. In order to obtain high precision measurements INAA was coupled to a second technique, Coulter Counter, which allows to measure the total particle content in a liquid [3]. Two samples from TALDICE ice core (Ross Sea/Pacific Sector, Antarctica) were successfully analyzed and concentration of major and trace elements were quantified in the same sample aliquots.

### REFERENCES

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