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Non-conventional applications of Accelerator Mass Spectrometry systems at CNA

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In this talk, we will start presenting the infrastructure available at the Centro Nacional de Aceleradores to perform Accelerator Mass Spectrometry. This infrastructure is based on a 1 MV Tandetrom system used for the determination of minute amounts of long-lived cosmogenic and artificial radionuclides in a great variety of matrixes and a compact system called Micadas designed and used exclusively for 14C determination, due to the high demand of measurements of this radionuclide mainly with dating purposes.
After a presentation of the most conventional research lines followed using this infrastructure, related mostly with environmental applications, and after an evaluation of the state of the art of the technique in the centre in relation with the main AMS centres over the world, our efforts will be concentrated in to show the results achieved developing two unconventional applications of these AMS systems: a) the determination of long-lived artificial radionuclides in complex matrixes resulting from the decommissioning of commercial nuclear reactors at levels not reached with conventional radiometric methods (essential for a proper disposal assessment of the generated residues), and b) the use of 14C in some forensics studies such as the performed ones fighting against the illegal traffic of ivory pieces or fighting against the fraud in the marketing of biofuels.

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