

## The Emulsion Scanning System of the OPERA experiment

The target of the OPERA detector has a modular structure. The target unit, the so-called brick, is designed according to the Emulsion Cloud Chamber (ECC) technique and it is made of lead plates acting as the neutrino target interleaved with nuclear emulsion films acting as trackers with micrometric accuracy. Bricks are placed in walls alternated with planes of scintillators providing, together with the instrumented magnetic spectrometers, the online reconstruction of the neutrino interactions and predicting the brick where the neutrino interaction presumably occurred. Doublets of emulsion films named Changeable Sheets (CS) are attached immediately downstream of each brick. They act as interface films between the brick and the electronic detectors, being a detector with a high signal to noise ratio. Their analysis with fully automated microscopes provides the brick tagging for vertex finding. In case the electronic prediction of the brick is not confirmed by the CS analysis, adjacent bricks are extracted and their CS analyzed until the brick location is confirmed. Tagged bricks are then processed and analyzed with fully automated microscopes until the neutrino vertex is found. After the vertex finding, a volume of about 2 cm<sup>3</sup> is analyzed all around the vertex in order to confirm the primary vertex and search for decays of short living particles. In this poster we report all the analysis chain of nuclear emulsions, from the CS analysis for the brick tagging to the track follow-up in the bricks and to the search for secondary decays. We provide an estimate of the efficiencies of the different analysis steps.

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