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Fullerene beams on the Tandem accelerator

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Abstract

The first fullerene beams were produced in 1993 on the Orsay MP tandem. The interest for these beams has always been constant because it is the only way to deposit very high energy densities, greater than the densities resulting from using uranium beams with energies of about 1 GeV, to create material modifications.

Continuous improvement up to this day has resulted in beam intensities up to 10^7 ions/cm² and the production of C₆₀³⁺ with energies as high as 48 MeV.

The fullerene beams are produced by bombarding a target made of compressed fullerene with a 20 keV cesium beam. The source is similar to an Ionex 834.

The diagnostics for these special beams will be presented.