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First demonstration with beam of the Achromatic Telescopic Squeeze (ATS)

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The Achromatic Telescopic Squeezing (ATS) scheme is a novel squeezing mechanism, which is (almost fully) compatible with the existing hardware of the LHC, and enables both the production and the chromatic correction of very low beta. *The basic principles of the ATS scheme will be reminded together with its basic motivation which is to deliver a very ambitious beta of 10-15 cm in view of the even more ambitious performance commitments taken by the HL-LHC project.* In this context, a few dedicated beam experiments were meticulously prepared and took place at the LHC in 2011. The results obtained will be highlighted, demonstrating already the viability of the scheme. The plans for 2012 will be discussed, with a few optics considerations which could already justify the implementation of the ATS scheme in the nominal machine, depending on which beta* limits will be met first, and that the ATS can solve (e.g. optics matchability, chromatic aberrations) and obviously cannot: the aperture of the existing triplet.

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