

**Experiments with Low and Negative Momentum Compaction Factor with SUPER-ACO**, A. NADJI, P. BRUNELLE, G. FLYNN, M.-P. LEVEL, M. SOMMER, H. ZYNGIER, LURE, Orsay - The aim of these experiments was to produce short light pulses by reducing the momentum compaction factor. These experiments show that the correction of the second-order term, using sextupole magnets, is essential in order to successfully reduce the momentum compaction by a large factor. By this technique, a factor of 100 reduction was obtained. Good agreement was obtained between experimental results and theoretical predictions. In addition, experiments with negative momentum compaction factor are currently being performed in order to test the predictions of beam stability with natural chromaticities (Head Tail effect) and the variations of bunch length and energy spread versus bunch current (potential well effect and microwave instability). The results of these experiments are presented here.

\* Work supported by CNRS, CEA, MESR