



Large Hadron Collider Project

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EFFECTS OF ULTRAPERIPHERAL NUCLEAR COLLISIONS IN THE LHC AND THEIR ALLEVIATION

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Abstract

Electromagnetic interactions between colliding heavy ions at the LHC are the sources of specific beam loss mechanisms that may quench superconducting magnets. We propose a simple yet efficient strategy to alleviate the effect of localized losses from bound-free pair production by spreading them out in several magnets by means of orbit bumps. We also consider the consequences of neutron emission by electromagnetic dissociation and show through simulations that ions modified by this process will be intercepted by the collimation system, without further modifications.

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