

Abstract Submitted
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Beam Condition Monitoring with Diamonds at CDF PETER DONG, University of California, Los Angeles, RICARDO EUSEBI, Fermi National Accelerator Laboratory, CHARLIE SCHRUPP, University of California, Los Angeles, ANNA SFYRLA, University of Geneva, RICK TESAREK, Fermi National Accelerator Laboratory, RAINER WALLNY, University of California, Los Angeles — Particle physics collider experiments at the high energy frontier are being performed today and in the next decade in increasingly harsh radiation environments. While designing detector systems adequate for these conditions represents a challenge in itself, their safe operation relies heavily on fast, radiation-hard beam condition monitoring (BCM) systems to protect these expensive devices from beam accidents. The talk will present such a BCM system based on polycrystalline chemical vapor deposition (pCVD) diamond sensors designed for the Collider Detector at Fermilab (CDF) experiment operating at Fermilab's Tevatron proton-antiproton synchrotron. We report our operational experience with this system, which was commissioned in the spring of last year. The system currently represents the largest of its kind to be operated at a hadron collider. It is similar to designs being pursued by the next generation of hadron collider experiments at the Large Hadron Collider (LHC).

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