

Abstract Submitted  
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**Measurement of the Top Quark Mass in the Lepton+Jets Channel at DØ** ROBERT HARRINGTON, Northeastern University, DZERO COLLABORATION — The top quark mass is one of the fundamental parameters of the Standard Model. At a hadron collider, top quarks are dominantly produced in pairs ( $t\bar{t}$ ), each of them decaying to a  $W$  boson and a  $b$  quark. We report on the measurement of the mass of the top quark in the lepton+jets final state, using data collected by the DØ experiment during Run II of the Fermilab Tevatron collider. The top quark mass is extracted by making use of an event-by-event likelihood built from the matrix elements for signal and background and the detector resolution for the reconstructed decay products, thus making an extensive use of the available statistical information. This method was first applied to the Run I dataset to measure the top quark mass at DØ and led to a substantially reduced statistical uncertainty with respect to previous methods. The method is further enhanced through secondary vertex tagging, which allows selection of events more likely to have contained  $b$ -quarks due to the presence of displaced vertices. This technique greatly enhances the purity of the data sample, allowing a potentially more precise measurement of the top quark mass.

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