

Abstract Submitted
for the APR08 Meeting of
The American Physical Society

A New Algorithm for Measuring the Energy of Hadronically Decaying Tau Leptons ANDREY ELAGIN, ALEXEI SAFONOV, Texas A&M University, CDF COLLABORATION — We present a new technique for the accurate energy measurement of hadronically decaying tau leptons. This technique has been developed for use at the CDF experiment at the Tevatron. It is based on the particle flow algorithm complemented with a likelihood-based technique for separating contributions of overlapping depositions of spatially close particles. Based on Monte Carlo studies, this new approach is expected to improve the accuracy of the measurement by approximately a factor of two. In addition to superior energy resolution, this technique provides a direct estimate of the uncertainty on the energy measurement of individual tau candidates. While important in itself, this latter feature can serve as a powerful identification tool in distinguishing hadronically decaying tau leptons from jet and light lepton backgrounds. This new technique is expected to significantly improve the sensitivity of the $h \rightarrow \tau\tau$ search at the Tevatron.

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Date submitted: 11 Jan 2008

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