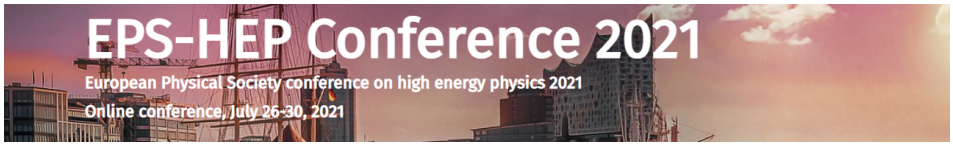

Contribution ID: **1087** Type: **Parallel session talk**

Measuring the polarization of boosted, hadronic W bosons with jet substructure observables

Monday 26 July 2021 10:45 (15 minutes)

In this work, we present a new technique to measure the longitudinal and transverse polarization fractions of hadronic decays of boosted W bosons. We introduce a new jet substructure observable denoted as p_θ, which is a proxy for the parton level decay polar angle of the W boson in its rest frame. We show that the distribution of this observable is sensitive to the polarization of W bosons and can therefore be used to reconstruct the W polarization in a model-independent way. As a test case, we study the efficacy of our technique on vector boson scattering processes at the high luminosity Large Hadron Collider and we find that our technique can determine the longitudinal polarization fraction to within ± 0.15.

First author

Songshaptak De

Email

dingo1691sde@gmail.com

Collaboration / Activity

IIT Bombay

Primary authors: DE, Songshaptak (IIT Bombay); Prof. RENTALA, Vikram (IIT Bombay); Prof. SHEPHERD, William (Sam Houston State University)

Presenter: DE, Songshaptak (IIT Bombay)

Session Classification: T07: Top and Electroweak Physics

Track Classification: Top and Electroweak Physics