FCC R&D meeting

updates

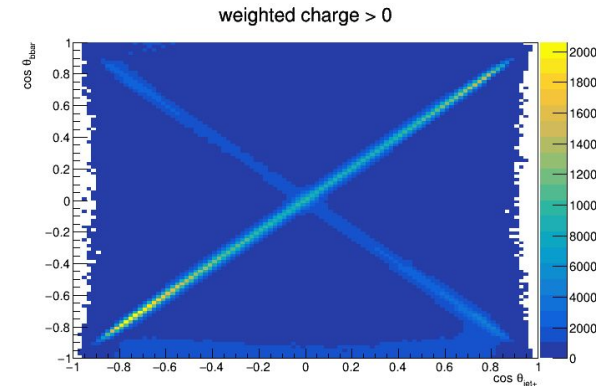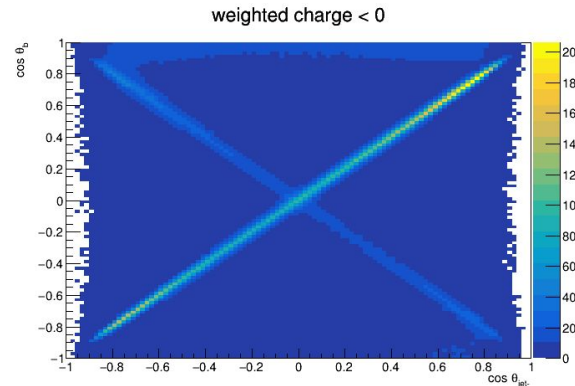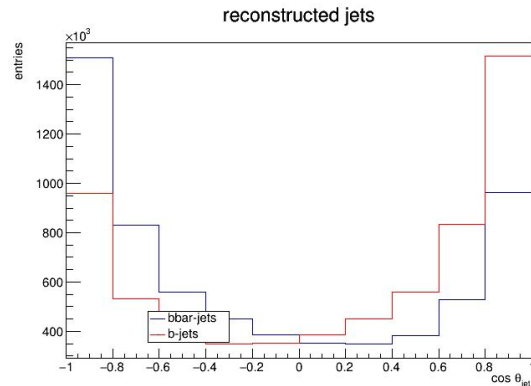**Giovanni Guerrieri,** M. Pinamonti, L. Toffolin,
G. Panizzo, M. Cobal

INFN/Udine group

- Team additions:
  - Leonardo (Trieste Uni.): master student, starting his work, simulating events with Delphes and studying jet and charge features for Afb

  - Hamzeh (Maynooth Uni.): ongoing FCNC @FCCee study + starting @ Udine (software+physics)

  - Fairouz + Mathis (Grenoble Uni.): starting reproducing Afb studies; mostly exploring FCCSW

- General team efforts:
  - Replicating LEP analysis for Afb

  - Exploring machine-learning based methods to reconstruct the direction of b-jets (i.e. thrust axis)

- FCCW2022
  - Giovanni presenting poster on Afb at FCC-ee

Afb @ FCC-ee

- Leonardo's studies ongoing
  - 13M bbar events @ Z pole, Delphes with standard IDEA card.

  - Jet-charge reconstruction: $\Delta R < 0.4$

removal of detector resolution effects from observed distribution, to extract (our best-guess of) underlying true distribution

- Future steps: unfolding
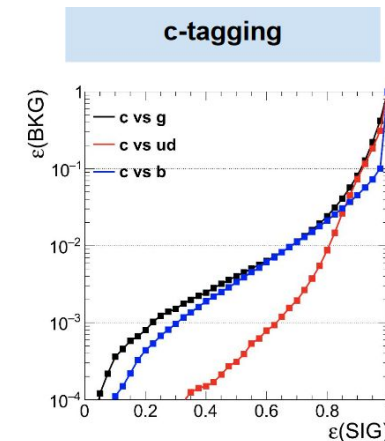 - Already prepared unfolding matrix; studies on different backgrounds and truth distribution estimation.

- Development of a ML-driven analysis to directly compute $\cos\theta_{thrust}$ + comparison with traditional methods

- Implementation of DNNs for *b*-tagging (Franco, Loukas, Michele)

flavour tagging at FCC-ee
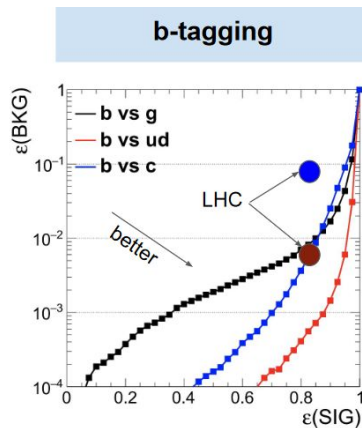
WP	Eff (b)	Mistag (g)	Mistag (ud)	Mistag (c)
Loose	90%	2%	0.2%	3%
Medium	80%	0.7%	<0.1%	0.4%

WP	Eff (c)	Mistag (g)	Mistag (ud)	Mistag (b)
Loose	90%	8%	7.5%	5%
Medium	80%	3%	0.9%	2.5%