

KASCADE-Grande: Composition and post-LHC models

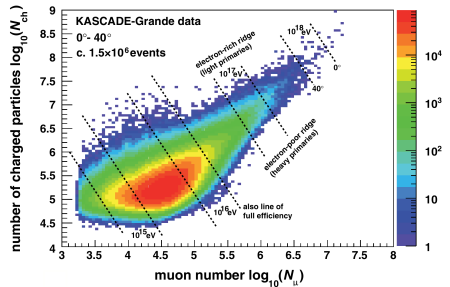
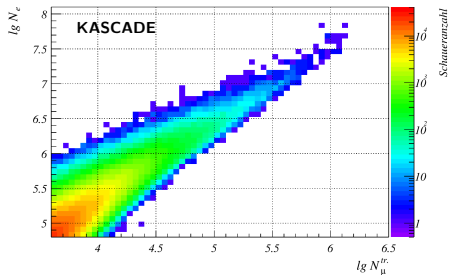
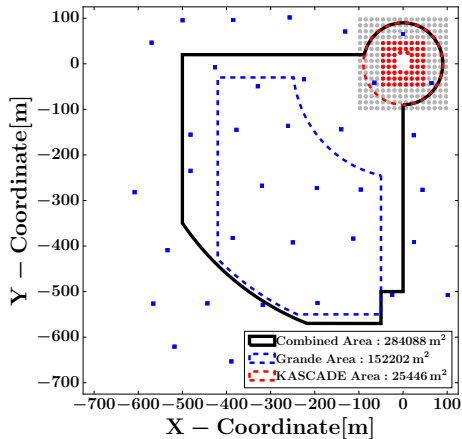
Sven Schoo

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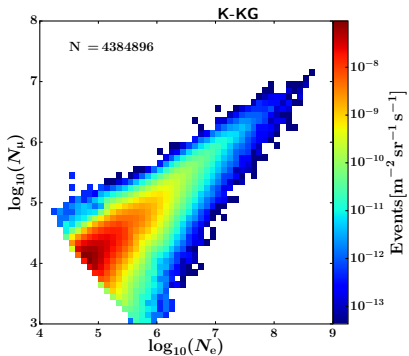
07.12.2016



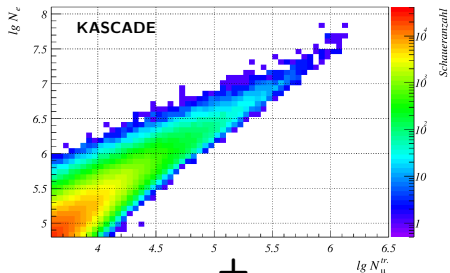
KASCADE, KASCADE-Grande, and K-KG



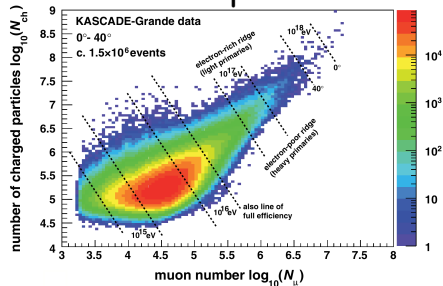
KASCADE, KASCADE-Grande, and K-KG



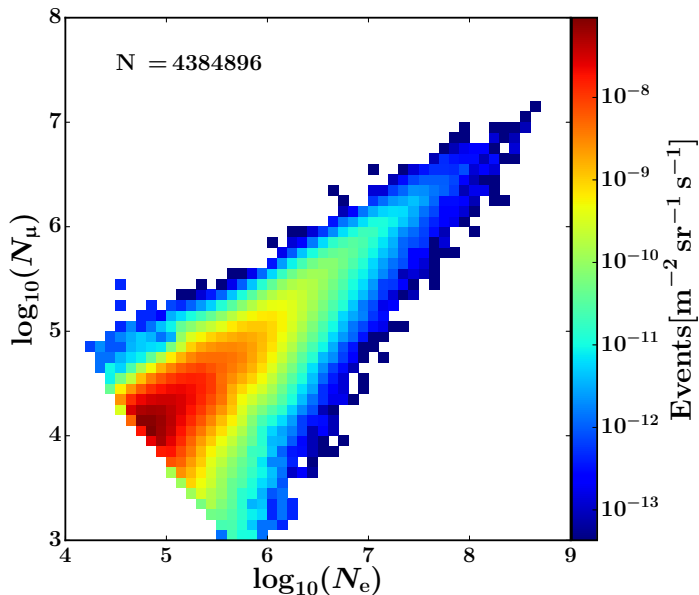
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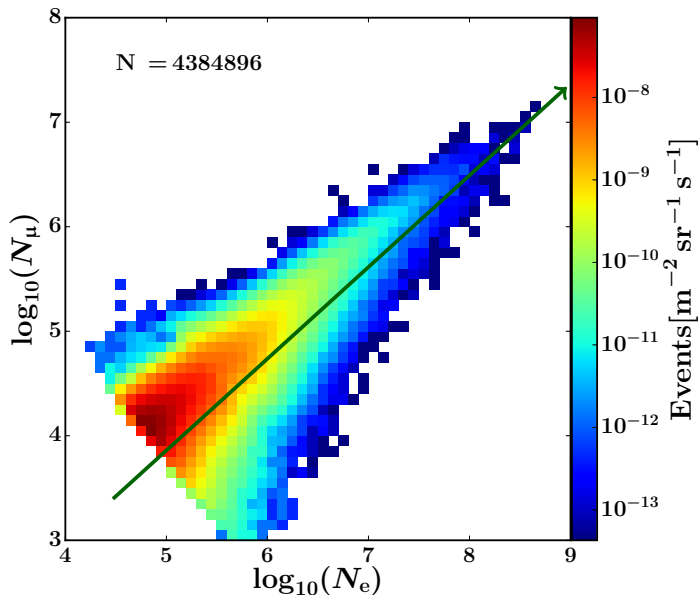
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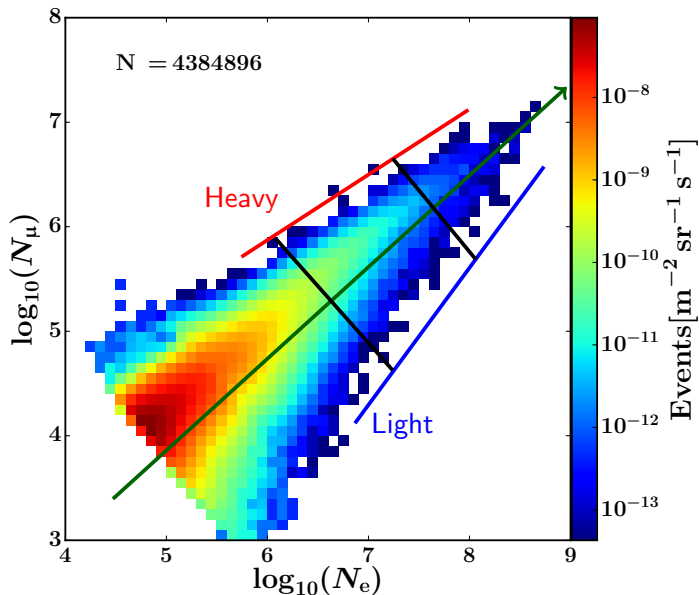
Energy and Mass: Reconstruction



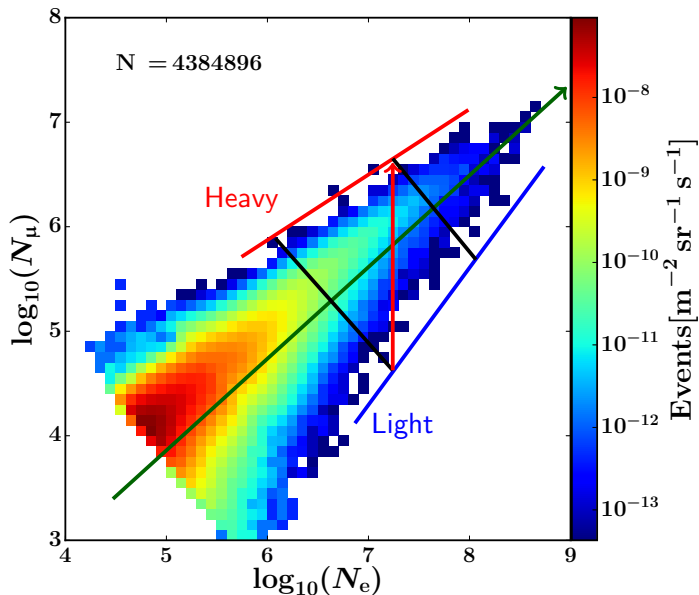
Energy and Mass: Reconstruction



Energy and Mass: Reconstruction



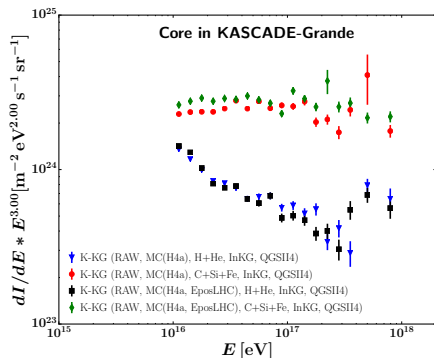
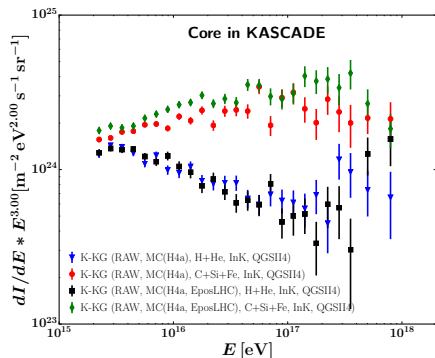
Energy and Mass: Reconstruction



QGSJetII4 vs EposLHC - Simulations

Light components now in agreement

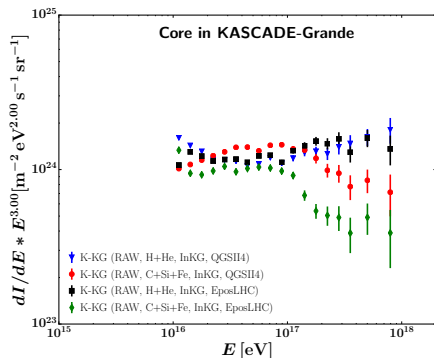
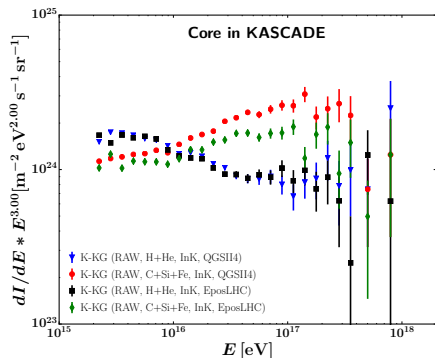
Heavy components still in disagreement



QGSJetII4 vs EposLHC - Measurement

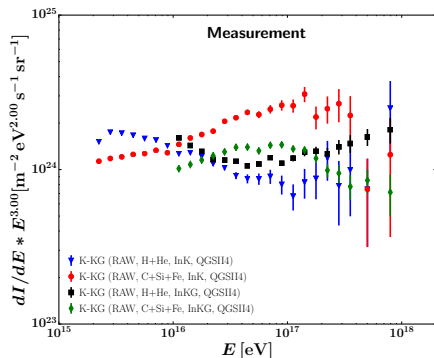
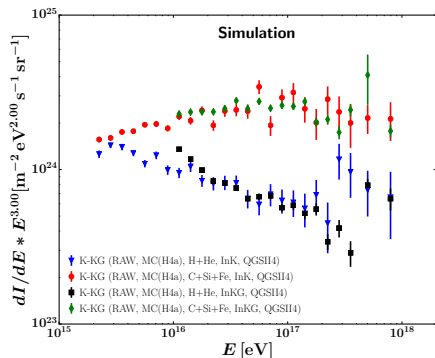
Light components now in agreement

Heavy components still in disagreement



Core in K vs Core in KG - QGSJetII4

Disagreement between very forward muons (in K) and muons away from the axis (in KG)



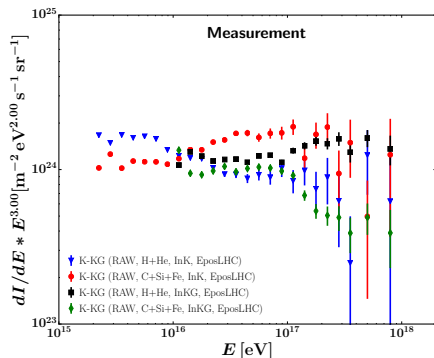
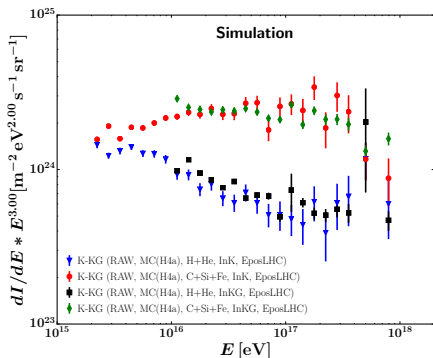
Disagreement only in measurement.

Known: Predicted LDF is too flat (slope parameterized but fixed during reconstruction).

Unknown: In K or in KG better? Truth in between or beyond either?

Core in K vs Core in KG - EposLHC

Disagreement between very forward muons (in K) and muons away from the axis (in KG)



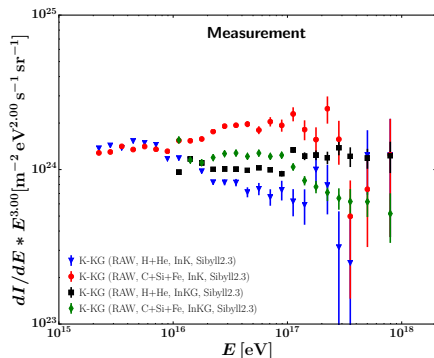
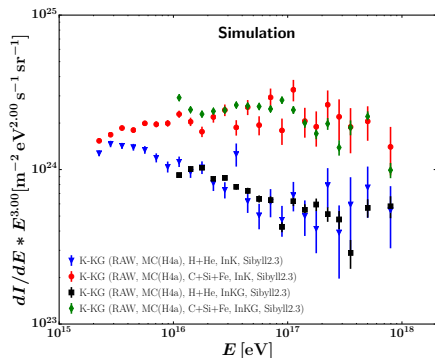
Disagreement only in measurement.

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Unknown: In K or in KG better? Truth in between or beyond either?

Core in K vs Core in KG - Sibyll 2.3

Disagreement between very forward muons (in K) and muons away from the axis (in KG)



Disagreement only in measurement.

Known: Predicted LDF is too flat (slope parameterized but fixed during reconstruction).

Unknown: In K or in KG better? Truth in between or beyond either?

Summary

Models start to converge to similar predictions.

However:

Predicted development of muons inconsistent for all current models.

A new analysis is being performed.

Goal: Why is the predicted muon LDF too flat?

KCDC - New features and content end of the year.

KASCADE Cosmic ray Data Centre

Web: <https://kcdc.ikp.kit.edu>

Minor release in October:

The 'Spectra' plugin; publication of data-points + preview.

Additional exercises.

Release of NABOO in December:

Additional KASCADE Data

KASCADE-Grande

Detector description ready for detector simulation.