

Nuclear Interactions at Ultra-high Energy in Light of Recent Results from Auger

February 20-22, 2008 (Wednesday—Friday)

A Workshop at the Institute for Nuclear Theory, University of Washington, Seattle
<http://www.int.washington.edu/>

We envisage this primarily as a working meeting that emphasizes discussion with a limited number of short talks to introduce the issues. There are five half-day sessions and a concluding session to summarize. Listed times include discussion.

All talks will be held in room C520. Check-in will begin at 8:00 on Wednesday, in Room C411.

Wednesday, Feb 20

09.00 – 12.00 Session 1: (Chair, T. Gaisser) Introduction and overview.

- 09:00-10.00 AGNs as particle accelerators – Peter Biermann
- 10.00- 10.45 Propagation of cosmic rays over cosmic distances – Todor Stanev
- Break- 10.45—11:15
- 11:15- 11:45 Phenomenology of large air showers – Tom Gaisser
- 11:45- 12:15 pp total cross section at LHC with TOTEM – Jim Whitmore

Lunch: 12.15-13:45

13:45 – 17:45 Session 2: (Chair: R. Engel) Air shower measurements of UHECR

- 13:45- 14.15 Auger fluorescence profiles and Xmax – Michael Unger
- 14.15-14.45 Dependence of profile & Xmax on first interaction – Ralph Ulrich
- 14:45-15.45 Auger muon excess
 - CIC method – Fabian Schmidt
 - Other signatures, global picture – Maximo Ave
- Break 15:45- 16.15
- 16.15-16.40 HiRes showers with coincident muons in MIA – Pierre Sokolsky
- 16:40-17:05 HiRes – Depth of maximum and composition – John Belz
- 17.05- 17.50 KASCADE composition & comparison to models – Ralph Engel

Thursday, Feb 21

09.00 – 12.30 Session 3: (Chair: Mark Strikman) Hadronic interaction models confront reality (in EAS data)

9.00-9.30 Stability of muon number in EAS calculations – Serguei Ostapchenko

9.30-10.15 Fragmentation & muon production in EAS – H.-J. Drescher

Break 10:15-10:45

10.45-11.45 Implications of the event generator EPOS

For interpretation of EAS – Tanguy Pierog

For RHIC – Klaus Werner

11:45-12:15 Percolation models – J. Dias de Deus

Lunch: 12:30—14.00

14:00 – 17:00 Session 4: (Chair: Larry McLerran) What can we learn from RHIC

14.00- 14:45 Fragmentation studies at colliders – Sebastian White

14.45 – 15:30 Patterns of fast parton propagation through high density gluon fields
--Mark Strikman

Break: 15:30-16.00

16.00- 17.00 Implications of parton density saturation for nucleon fragmentation
sub-topic 1 – Jamal Jallilian-Marian

sub-topic 2 – Anna Stasto

17:00 – 17:30 High pT muons in air showers – Spencer Klein

18:30 – 21.00 Dinner at Ivar's seafood

Friday, Feb 22

09:00 – 12.00 Session 5: (Chair: Paolo Lipari)

9.00-9.45 Predictions of cosmic-ray event generators for LHC – Ralph Engel

9.45- 10.30 Summary comments including implications of hadronic interactions for event generators and interpretation of UHECR—Paolo Lipari

Break: 10:30 – 11:30

11:30 – 12.00 Discussion

Lunch: 12:00- 13.30

13.30 – 15.00 Roundtable discussion, conclusions, writing assignments