The Analysis Centre in the Helmholtz Alliance „Physics at the Terascale“.
Enhancing the physics potential of the German LHC / ILC community

**Education and Training.**
- About 10 schools / workshops per year with 40-100 participants.
- Well accepted, excellent feedback.
- Adapting to needs of users.
- One of the strong points of the Analysis Centre.

**Statistics Tools Group.**
- Education, support and development
  - Various topics: Signal-background separation using MVA methods, searches, signal fitting, limit derivation, unfolding, systematic uncertainties, ...
  - Two schools per year, informal statistics meetings, software reviews, etc.
  - Involvement at core level of different tools / programs: LVMINI, Milenpede, TMVA, Tunfold, ....
  - Excellent working connections via Alliance institutes: Fitfit, Glitter, BAT, Roostats, ...
  - Good access to LHC experiments via experimenters’ statistics committees.
  - Support function to be further developed.

**PDF Group.**
- The PDF group in the Analysis Centre
  - Support of HERA analyses (extraction of PDFs).
  - Comparison of different PDF analyses.
  - Theoretical calculations for the improvement of ongoing OP and pA analyses.
  - Platform for analysis of inclusive hard scattering data at the LHC (DY, tbar, Higgs, etc.)

**Everybody is there!**

**Monte Carlo Group / Network.**
- The MC group in the Analysis Centre
  - Systematic understanding of all QCD aspects of LHC events
  - Unintegrated PDFs and PDFs for MC.
  - Multiple interactions and underlying events.
  - Paron shower algorithms + matching schemes at LO / NLO: validation against pQCD field theory.
  - Tuning of MC generators in / across experiments.
  - Many concrete projects: PROFIT, CASCADE, HEPMC/Analysis, PDF4MC, etc.
  - Regular meetings, many visitors, intensive collaborations with other players (Lund, Durham, MCHNet, etc.).

**Networking.**
- The whole Alliance is about “bringing people together”, building connections and collaborations, exploiting potential synergies.
- Example 1: MC Network of MC group in the Analysis Centre and all German MC activities. Regular active exchange.
- Example 2: Network of statistics tools projects in German HER.

**Contact and Feedback.**
- The Analysis Centre relies on the input from and feedback of the community to shape a successful programme.
- Feel free to send your questions, wishes, criticisms, suggestions etc. to us:
  anacen@desy.de

**Assorted issues.**
- Establishing of the Analysis Centre seminar focusing on technical / phenomenological aspects.
- Currently being set up: studentship programme, attracting Ph.D. students to DESY (1-3 months) to work with the groups, learn, contribute and broaden their horizon.
- Visitor programme and discussion / phenomenology weeks in the groups.
- Under investigation: MoSIS – a Modern Science information System.
- Under investigation: Theorist of the week.
- More ideas around, and input welcome!

**Function calls**

<table>
<thead>
<tr>
<th>lvmimi</th>
<th>Minuit</th>
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<tr>
<td>2000</td>
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</tbody>
</table>

Number of function calls in test fitting / minimisation problem with LVMINI (black) and MINUIT (red). The reduction in the mean number of function calls is clearly visible.

**Study of influence of heavy-flavour treatment in PDF fits on Higgs production.**

Results of this study (coloured bands) compared to MSTW08.

**Fließtext Arial regular, mindestens 16pt, Zeilenabstand Standard**


**Zwischenüberschrift 16pt, DESY-cyan**


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