KSETA Doktoranden Workshop 2014



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Minimisation with Python

The KSETA Doctoral Workshop allows interested KSETA fellows to learn more about methods and tools that might support their research. Doctoral students of all KSETA research fields, from theoretical or experimental particle and astroparticle physics to software or cryogenic engineering, are invited to spend three interesting and inspiring days together and to benefit from the other participants' experience. One key aspect of the workshop are the tutorials given by all participating doctoral students. In groups, the participants prepare their tutorial "from doctoral fellows for doctoral fellows" on a topic that could be useful to others concentrating on other fields of research. This tutorial may cover introductions to useful tools, basic technologies for non-engineers, basics in physics for non-physicists, or applicable methods for research.

Every tutorial lasts one hour and the presenter is free to use any didactic method like PowerPoint, whiteboard, or interactive methods such as exercises on programs installed on the students' laptops.

The workshop program is complemented by invited talks and discussions.

In this tutorial basic statistical concepts and techniques for fitting and minimisation will be presented.

Connected topics like maximum-likelihood and uncertainty estimation will be explained using hands-on examples from (astro-)particle physics. Complementing exercises will be provided using the widely recommended programming language Python.

In fact, Python offers many packages and functions, making it a powerful tool for statistical analysis.

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