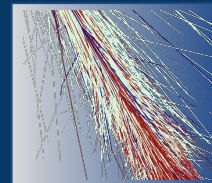


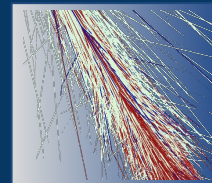
Welcome

Ralf Ulrich



CORSIKA Cosmic Ray Simulation Workshop Karlsruhe

Purpose of workshop



30 years of CORSIKA celebration

Looking into the past and history of air shower simulations

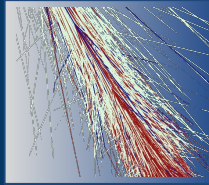
Requirements and further input

Applications and “feature requests”

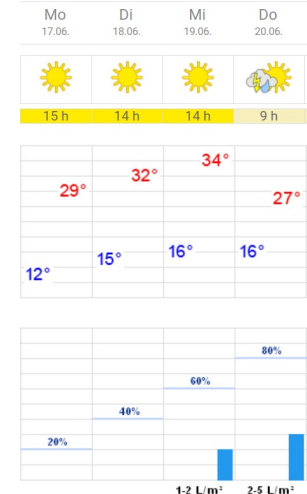
Status and progress of air shower simulations

CORSIKA 8: recent work, status, first demonstrations,
plans and next steps

General organization



- Upload slides directly in indico → you need an indico account
- Or provide slide on USB stick to Maximilian or me
- We collect all slides on indico page
- Two coffee breaks, one morning one afternoon
- Lunch breaks: 12:30 – 14:00
- Workshop photo: Tuesday before lunch
- Wednesday workshop dinner (and small excursion)
- WLAN

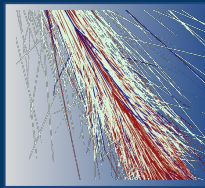


Agenda and Workshop page: <https://indico.scc.kit.edu/event/529>

17 Jun 2019		18 Jun 2019		19 Jun 2019		20 Jun 2019	
AM	09:30 Arrival, Registration, Coffee - Organizers ()	09:00 Celebration: 30years of CORSIKA (until 12:45) ()	09:00 Applications and requirements of CORSIKA (until 10:30) ()	09:00 Applications and requirements of CORSIKA (until 09:40) ()			
	10:30 --- Break ---	09:00 Introduction - Ralph Engel ()	09:00 Use of CORSIKA for the IceTop Radio Enhancement - Alan Coleman (University of Delaware) ()	09:00 Simulations for the atmosphere with clouds - Mario Pecimotika (University of Rijeka, Department of Physics, Croatia) ()			
	11:00 Welcome - Ralf Ulrich (KIT) ()	09:10 Original motivation for CORSIKA - Gerd Schatz ()	09:20 Radio detection of extensive air showers - Tim Huege (KIT) ()	09:20 Testing modifications to hadronic interactions in air showers - Jan Ebr ()			
	11:10 Status and progress of air shower simulations (until 12:25) ()	09:30 From Quarks to Air Showers: A Historic Review of the Development of the Simulation Program System ASICO, Results and Impact, and Its Evolution to CORSIKA - Prof. Peter Grieder (University of Bern, Switzerland) ()	09:35 Handling the metadata for large amount of CORSIKA simulations - Dmitry Kostunin (DESY) ()	09:40 Status and progress of air shower simulations (until 10:20) ()			
	11:10 Introduction - Ralph Engel ()	10:05 Collisions from 40 years ago... - Capdevielle Jean-Noel () collisions from 40 years ago...T1.ppt	09:55 CORELib: CoSMic Ray Event Library - Simona Maria Stellacci ()	10:20 --- Coffee ---			
	11:25 The CORSIKA 8 Project - Ralf Ulrich (KIT) ()	10:25 --- Coffee ---	11:00 Status and progress of air shower simulations (until 12:35) ()	10:50 Status and progress of air shower simulations (until 12:20) ()			
	11:45 Status of capabilities of CORSIKA 8, first results and comparisons - Maximilian Reininghaus (KIT / IKP) ()	11:00 The link to particle physics - Johannes Knapp ()	11:00 Particle propagation for CORSIKA in PROPOSAL - Jean-Marco Alameddine ()	10:50 DynStack / Memory management - Implementation and features - Dominik Baack (TU Dortmund) ()			
12:05 The lepton propagator PROPOSAL and the air shower simulation code CORSIKA - Alexander Sandrock (Technische Universität Dortmund) ()	11:25 Developments of CORSIKA - Dieter Heck ()	11:20 EmCa - Electromagnetic Cascades Simulation Package - Stephan Meighen-Berger ()	11:10 Run control and steering - Dr. Lukas Nellen (I de Ciencias Nucleares, Universidad Nacional Autonoma de Mexico) ()				
	11:50 CORSIKA and Imaging Air Cherenkov Telescopes - Wolfram Domgen ()	11:40 Hands-On: Physics processes - felix riehn (LIP, Lisbon) ()	11:45 Speedup of extensive air shower simulations with neural networks - Marcel Köpke (Karlsruhe Institute of Technology) ()				
	12:15 Workshop Photo - Everybody () photo.pdf		12:25 Conclusion and end of workshop - Ralf Ulrich (KIT) ()				
PM	12:30 --- Lunch ---	12:45 --- Lunch ---	12:35 --- Lunch ---	12:25 Conclusion and end of workshop - Ralf Ulrich (KIT) ()			
	14:00 Applications and requirements of CORSIKA (until 15:00) ()	14:15 Applications and requirements of CORSIKA (until 17:40) ()	14:00 Status and progress of air shower simulations (until 17:00) ()	12:45 --- Lunch ---			
	14:00 Measured and simulated muon flux for the first KM3Net Detection Units - Piotr Kalaczynski (NCBJ Warsaw) ()	14:15 Modeling of high energy cosmic ray interactions: selected topics - Sergey Ostapchenko ()	14:00 Python in High-Energy Physics - Hans Dembinski (Max Planck Institute for Nuclear Physics, Heidelberg) ()	14:10 Working session on CORSIKA 8 (optional, post-workshop) ()			
	14:20 Corsika simulations of background in Baikal experiment - Blahoslav Pastrcak (IEP SAS Kosice) ()	14:55 SMASH - a novel transport model to simulate low-energy hadronic interactions - Anna Schäfer ()	14:30 Optimization and Vectorization - Luisa Arrabito ()				
	14:35 Proton-Oxygen collisions at the LHC for air shower research - Hans Dembinski (Max Planck Institute for Nuclear Physics, Heidelberg) ()	15:30 --- Coffee ---	14:50 Atmosphere Implementation and approximations - Konrad Bernlöhr ()				
	15:00 --- Coffee ---	16:00 Opportunities with Zero Degree Calorimeters at CMS - Tanguy Pierog (IKP, KIT) ()	15:10 Simulation of radio emission from particle showers in CORSIKA 7 and CORSIKA 8 - Tim Huege (KIT) ()				
	15:30 Status and progress of air shower simulations (until 17:05) ()	16:20 Zero-degree neutron measurements with CMS - Oliver Suranyi (Budapest) ()	16:00 --- Coffee ---				
15:30 The COSMOS air shower simulation program - Takashi Sako (ICRR, University of Tokyo) ()	16:40 Results from the LHCf calorimeter - Takashi Sako (ICRR, University of Tokyo) ()	18:00 --- Workshop Dinner ---					
15:50 Hands-On: Simulate your first CORSIKA 8 air shower - Ralf Ulrich (KIT) ()	17:00 GHOST - a new generator for nuclear collisions - Jean-Noel Capdevielle ()						
16:15 Introduction to template meta-programming in C++ - Hans Dembinski (Max Planck Institute for Nuclear Physics, Heidelberg) ()							

In general: please respect discussion time

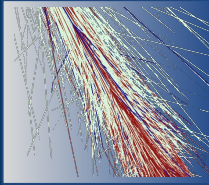
Workshop photo on Tuesday



Path to best workshop photo location, ~200m

- Need signed agreement about photo → Sabine
- Tuesday before lunch





- Contributions until 15:25, coffee break until 16:00
- Dinner at Schützenhaus (Turmberg) 19:00
- Different options in time between 17:00 – 19:00
- Careful: consider ~1h (without any stress) going to Schützenhaus by public transportation
- can be very easily combined with visiting Turmberg Castle (+30min), Turmberg-Bahn, walking around in Durlach (historic town), and/or on Turmberg

31+ participants

Our workshop dinner is in the restaurant “Schützenhaus” on a hill (“Turmberg” - most north-west mountain of Black Forest) next to Durlach.

This can be combined with a small excursion around Durlach and on Turmberg, see some options below.

Workshop location

Schützenhaus





15 times “yes” or “maybe”
in questionnaire



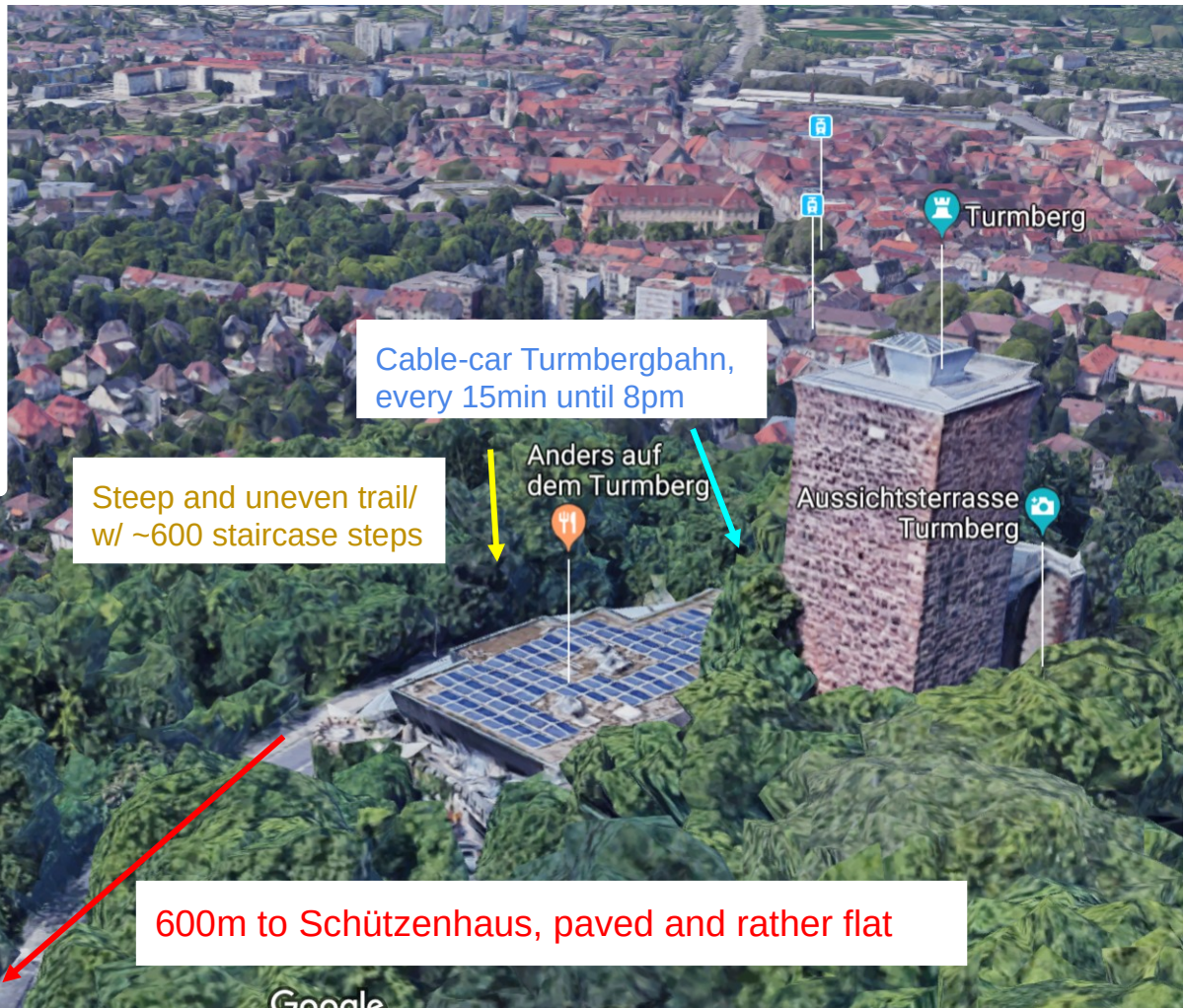
Turmbergbahn (link in german)

- 15min ride with **Tram 1** to Durlach (2.60EUR)
- Durlach is a very nice and old town: <https://en.wikipedia.org/wiki/Durlach>
- From Durlach center there are two preferred options:
 - Walk up the Turmberg hill (~200m up, steep, ~600 stair steps) to Schützenhaus, ~25min
 - Take the oldest german cable car to the top of Turmberg (2EUR) and then walk the remaining 600m (~flat) to Schützenhaus, ~25min
 - **Note:** on demand we organize transport by car (workshop <--> Schützenhaus), 20min

4 “maybe”



Visit of the castle
remains are free.



Schützenhaus

<https://www.schuetzenhaus-turmberg.de/>



Note on going back:

Turmberg-Bahn only runs until 8pm,

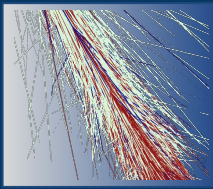
Walking down from Turmberg on foot is
no problem (~10mins),

if needed we organize transport by car

7 "maybe"



Climbing park next to Schützenhaus



<http://waldseilpark-karlsruhe.de/>

22EUR entrance fee for maximum 3h, we might get a group tariff

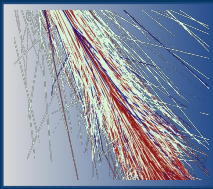
Very safe climbing with rented equipment in between the trees, major and exciting fun.

All difficult levels, from absolute beginners to top experts.



12+ interested

Other things to see



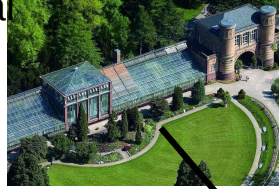
Natural history



<https://zkm.de/de>



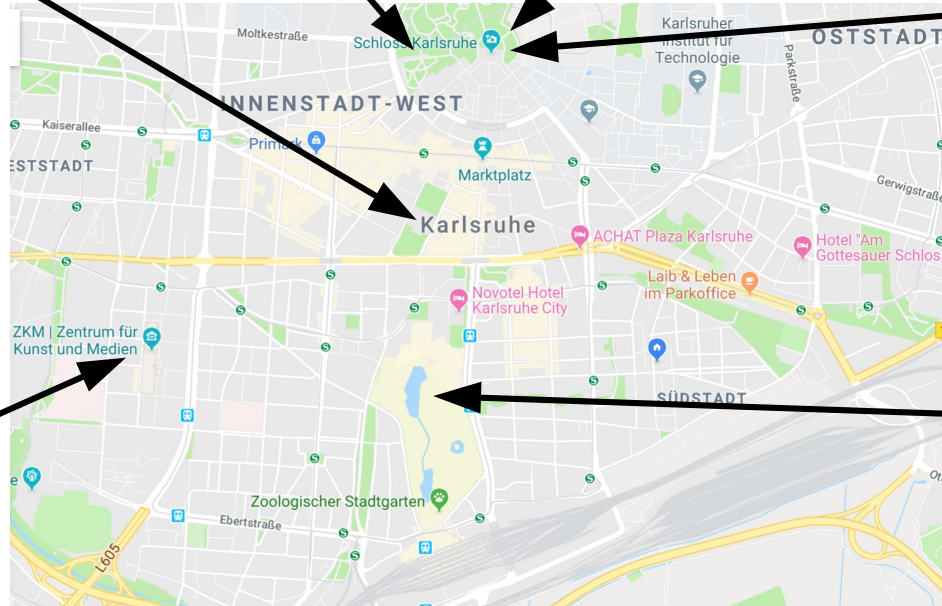
Botanical garden



Castle



mykene.landmuseum.de/



Zoo

