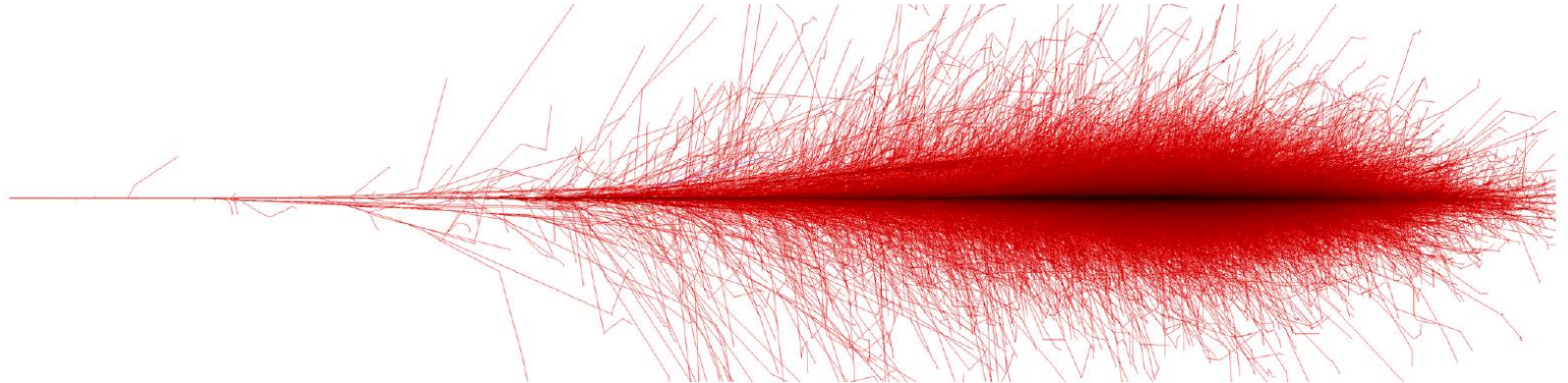# Welcome, organizational aspects and workshop goals

Tim Huege (KIT & VUB)

Welcome – very happy to see you here!

- Second in-person workshop since COVID
- 20+ on-site participants, 20+ on Zoom
- Benefit from great infrastructure at KIT Campus North
- Programme highlights
  - Discuss our ICRC contributions
  - Discuss current state of affairs, improvements of last year
  - Make a roadmap to a release in 2023
  - Do hands-on tutorial and *actual coding*
  - Discuss project matters
  - Workshop dinner on Tuesday evening, sponsored by IAP

Limitations of CORSIKA 7

- monolithic FORTRAN code (several dialects mixed),
  hard to navigate by physicists today
- program „options" heavily intertwined in the source code
- hand-optimized: fast, but incurs limitations, for example:
  atmospheric model based on strictly exponential density profiles
- difficult to adapt to modern super-computing environments:
  MPI-parallelized, but no multi-threading, no GPU parallelization, …

Tim Huege <tim.huege@kit.edu>

State of the project

- hadronic and electromagnetic cascades in good shape
    - FLUKA available, still need to fully integrate
- need to update validations against CORSIKA 7
- output formats YAML and Parquet; Python library ok – revisit later
- simulation steering is still rudimentary
- what is now our performance for realistic showers?
- we aim for an „expert release" in 2023, soon after ICRC
- documentation is insufficient

C8 Workshop 2023

Tim Huege <tim.huege@kit.edu>

Project organization

- C8 started in 2018, up to end of 2021 project led by Ralf Ulrich
- since beginning of 2022 we have a „steering committee"

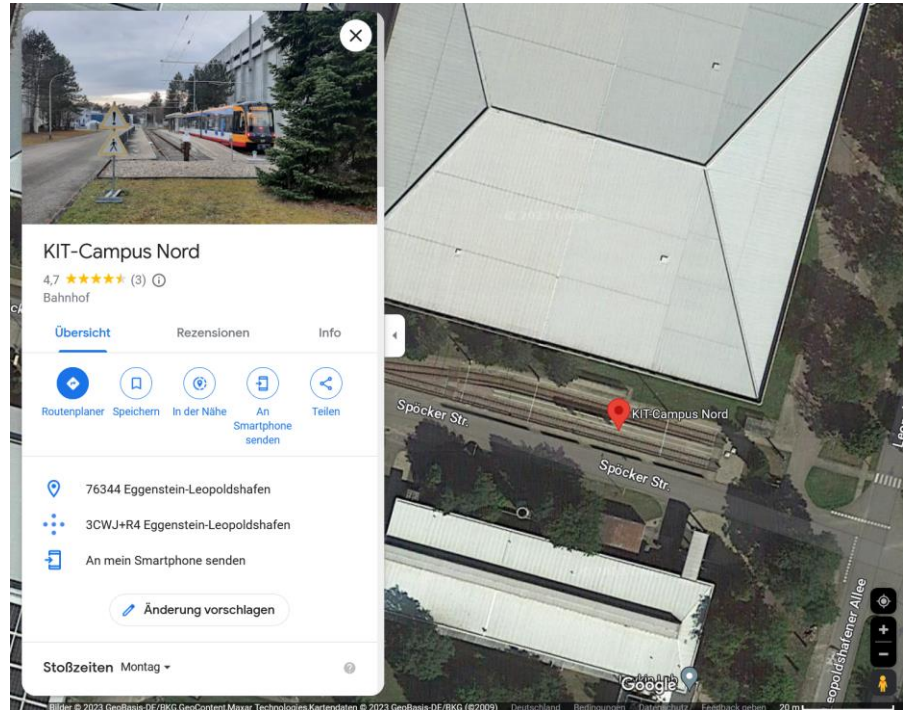|		
Tim Huege		project coordination
Dominik Baack	(Alexander Sandrock)	electromagnetic interactions
Tanguy Pierog	(Felix Riehn)	hadronic interactions
Alan Coleman	(Max Reininghaus)	software development
Augusto Alves jr.		performance, parallelization
Lukas Nellen		deployment, cont. integration
Ralf Ulrich		honorary member

Project organization

- developer meeting via Zoom every Thursday at 17:00 CEST
    - slides and minutes on the Indico
    - Alternating between „general" and „technical" calls
- (short) radio-focused meeting weekly, Mondays at 10:00 CEST
- steering committee meeting every 4th Tuesday at 17:00 CEST
- please also check the C8 calendar
- we use a C8-developer mailing list, contact Tim if you want access
- we have a C8 Slack channel, contact Tim if you want access

Workshop program

- Monday: ICRC, External input, hands-on tutorial
- Tuesdday: Radio, Cherenkov, updates since last year
- Wednesday: Open issues, towards a release, hands-on work
- Thursday: Project Matters, publications, hands-on work

- Goal is to prepare for ICRC, update everyone to current state, discuss open issues, plan and coordinate further work, and do hands-on work

C8 Workshop 2023

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Organisational things

- Lunch at canteen, guest cards
- We will take a workshop photo on Tuesday before lunch!
- Any questions about the commute? Tram leaves [here](#)

Summary

- I am looking forward to a lively and fruitful workshop
- Let's take C8 significant steps towards a first release

Tim Huege <tim.huege@kit.edu>