R&D Infrastructure

...around AP in Zeuthen

Stefan Klepser
Head of R&D / Deputy Director AP
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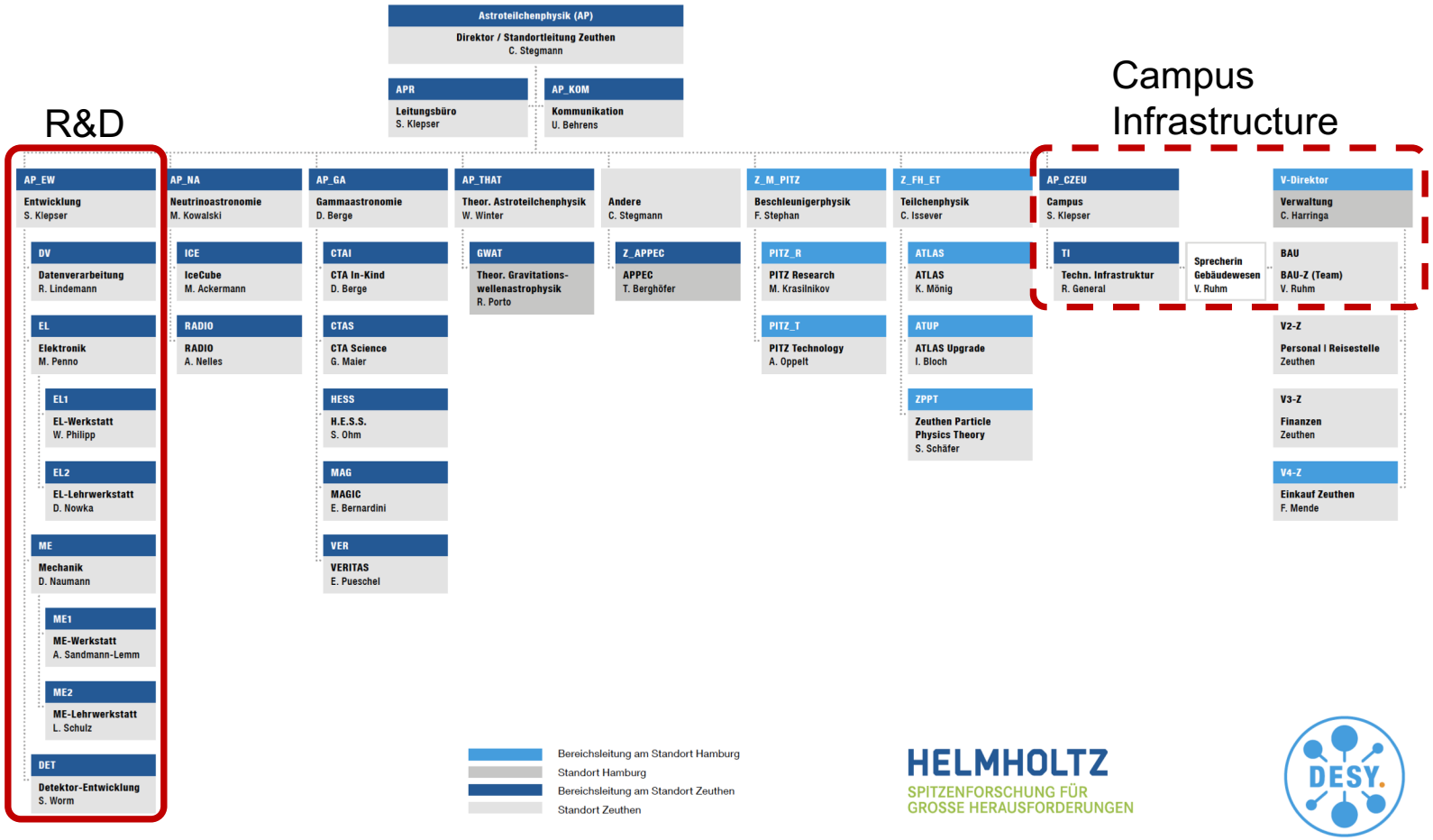
DESY.

Reminder: Where we are

Entwicklung = R&D



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DESY.

News since Nov 2019

- Electronics
  - Hire of 3 engineers completed; 1 still pending (currently open)
- Mechanics
  - No new hires; 1 upcoming (retirement)
- IT
  - Finished 1 hire before Corona; 1 pending (Campus network)
  - Computing strategy – finished a first draft (see extra slide)
- Campus Technical Infrastructure
  - I haven’t talked about it last time… see extra slide
  - 2 openings are out; one will come in addition

Campus infrastructure

Why it suddenly matters for this (physics) review board

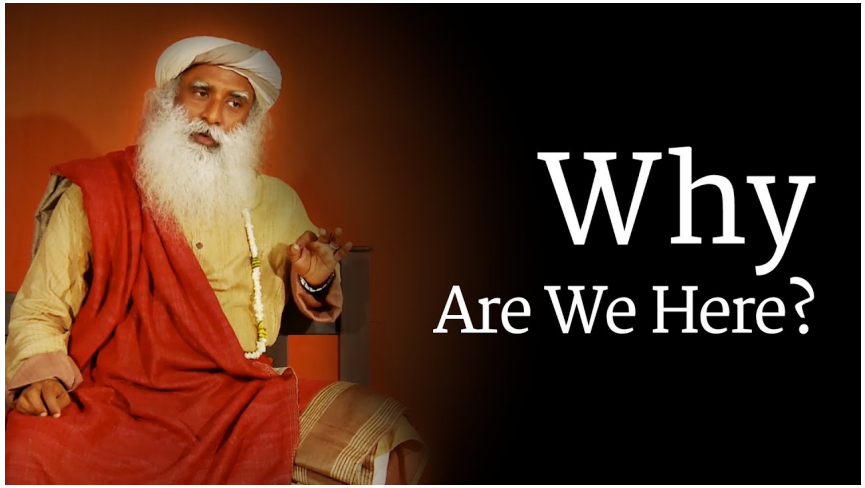
- ULTRASAT, CTA-MST and IceCube need specialised lab facilities
  - Clean room on DESY campus (ULTRASAT)
  - Assembly and testing spaces in Schönefeld (CTA-MST, IceCube)
- Building and commissioning facilities have turned into big projects by themselves
- Measures we took
  - Steve Worm (detector development) is now dedicatedly coordinating lab space
  - 2 people are being hired to strengthen TI (technical infrastructure)
  - Prioritise well (IceCube and CTA are delayed anyway, ULTRASAT is not)

Computing Strategy

…work in progress

- Clarified the **mission**

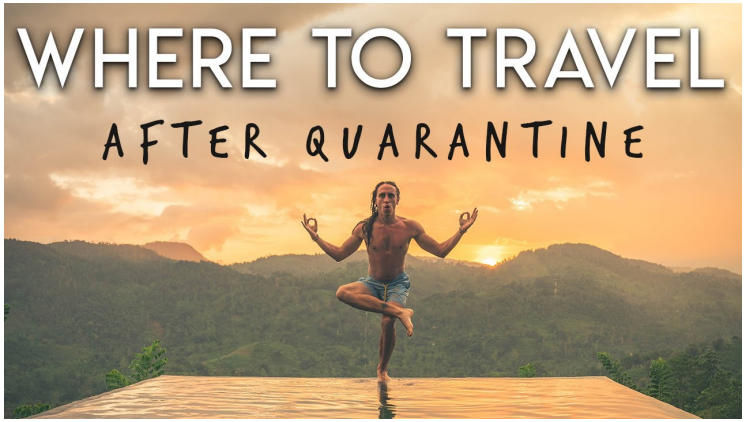
  1. Efficient **data acquisition** for our experiments
  2. Development of **software and algorithms** for science
  3. Access to high-end **computing**
  4. **FAIR* treatment and publication** of data, algorithms and software



Computing Strategy

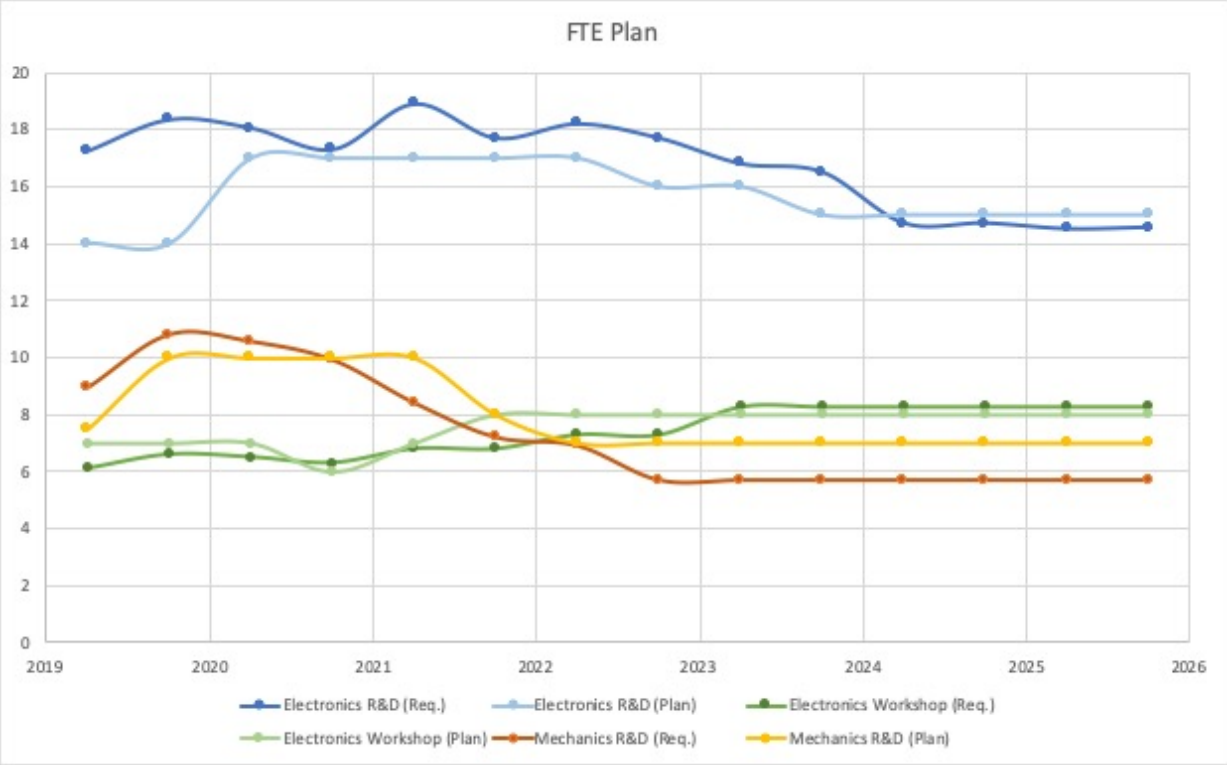
…work in progress

- Defined **fields of action** for the coming decade
  - Strengthen **competences** that become relevant – algorithms, software design, quantum computing (tbd.)
  - Define flagship projects of Zeuthen computing to prioritise and have a **defined portfolio** (tbd.)
  - Make sure that **hardware** is mainly there for local groups & university networks



Engineers and Technicians

Not much has changed here, the plan is still fine



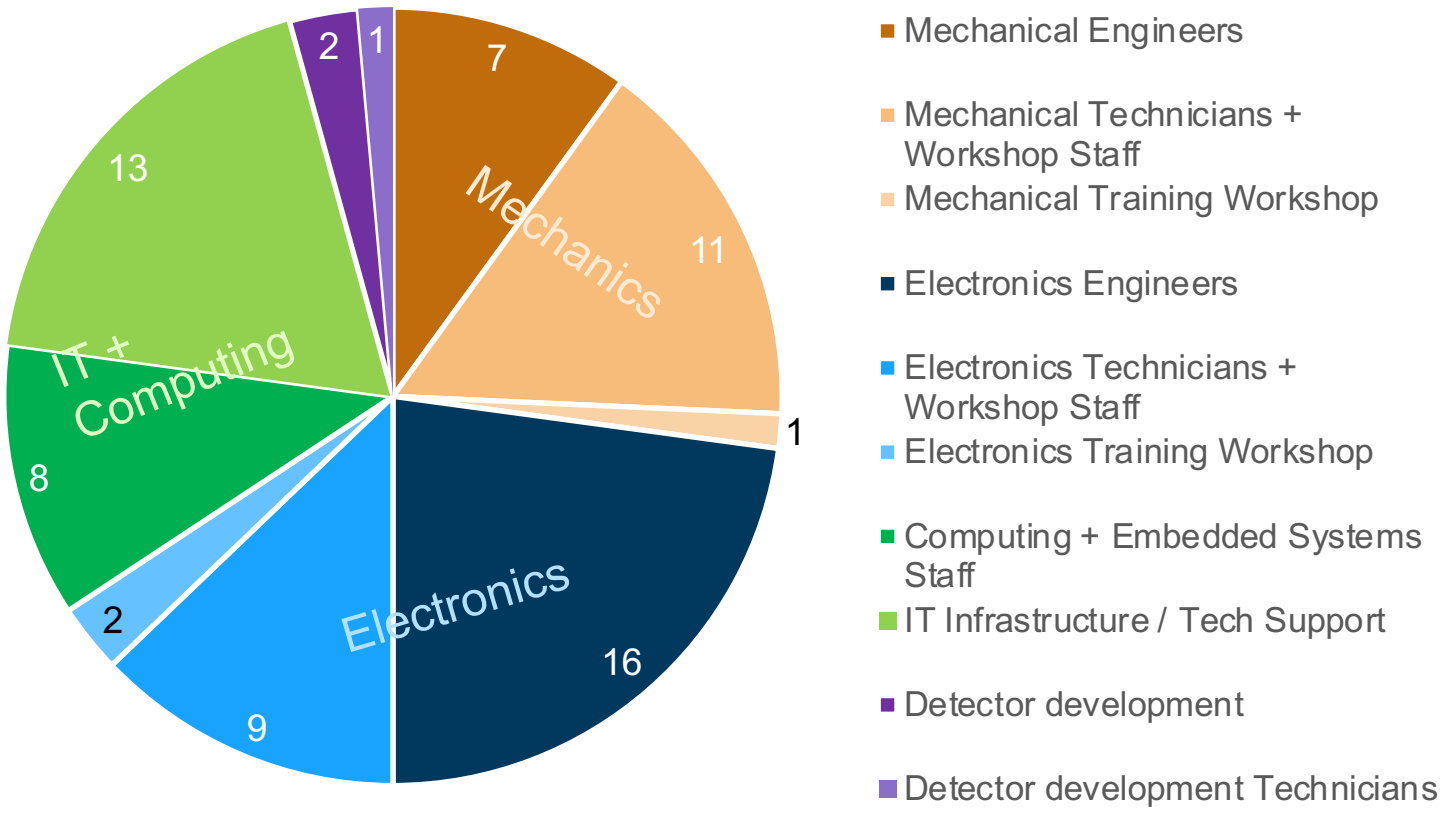
Summary

- The busy years are here
- Hires in R&D groups almost complete
- Hires in Campus group ongoing
- The planning is solid, but life is not a Gantt chart...
- Still, up to now only minor delays (partly also due to Corona)
- Impact of Corona is typically stronger on the entire projects than on our contribution → subordinate delays
  - Exception may be ULTRASAT

Backup from last APC

Who we are

69 permanent staff members



Who contributes where

(only major projects; FTEy 2019-2025)

Project	Mechanics	Electronics	IT	Sum
PITZ	29	45	20	**94**
CTA-MST	10	16	5	**31**
IceCube-Upgrade	3	9		**12**
CTA-CHEC		18		**18**
ULTRASAT		8		**8**
CTA-ACADA			20	**20**
Grid computing			20	**20**
AMPEL			2	**2**
HPC (theory)			3	**3**
H.E.S.S. DAQ			2	**2**
CTA Platforms (wish...)			(20)	**(20)**
Sum	**42**	**96**	**72 (92)**	**210 (230)**

Detector Development

A new "point of condensation" for detector technology

- Steve Worm starting a new group „detector development“
  - Very productive collaboration with ULTRASAT group already established!
  - Single photon to O(100) photons in a few ns
  - Sensors: PMTs, SiPMs
  - DESY focus is on electronics development and system design and integration

DESY Involvement in AP Detectors