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High Energy Physics (HEP)

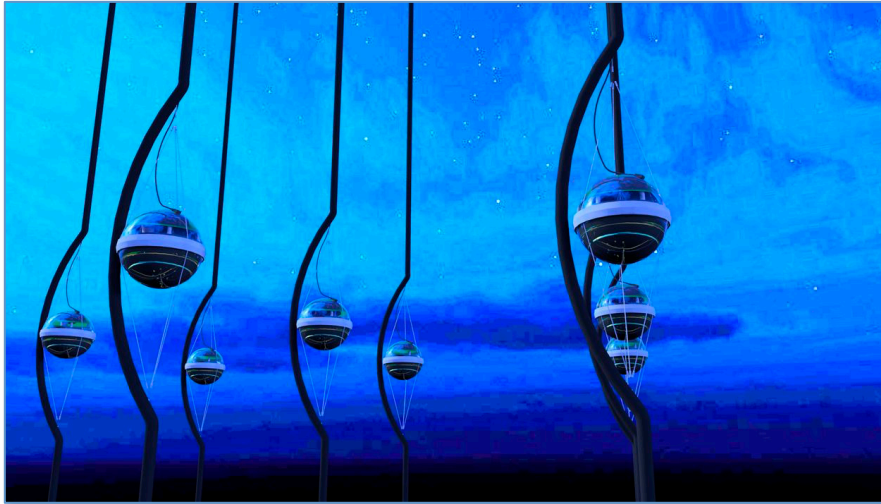
KoF presentation 10 May 2017

Rikard Enberg



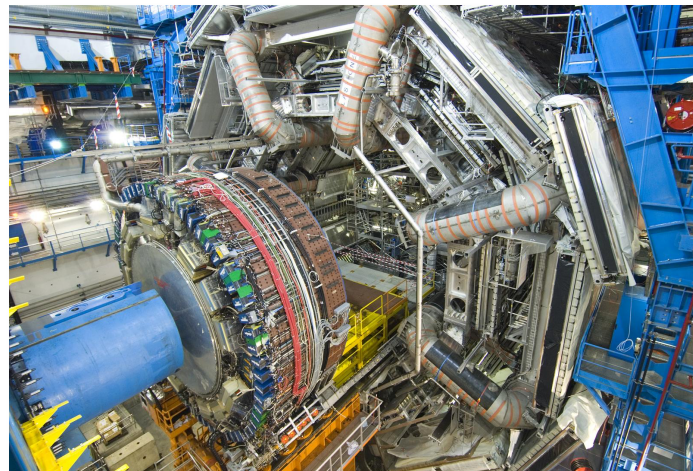
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High Energy Physics: 3 activities

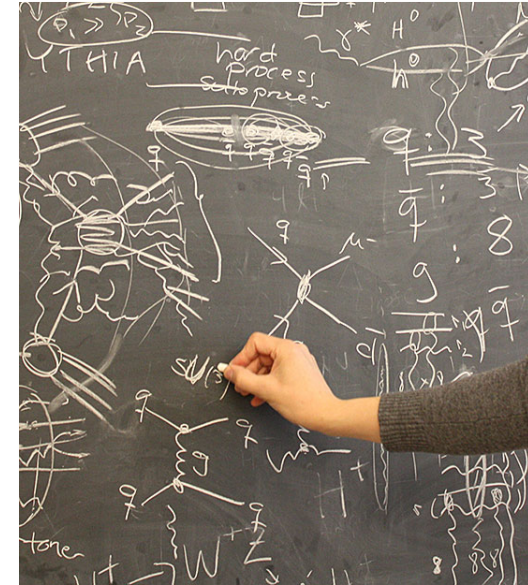


Experimental astro- particle physics

IceCube & Arianna:
Physics analysis, and
detector dev.



Collider-based experiment
ATLAS@CERN: Physics analysis
and detector development



Theoretical particle physics

Physics beyond SM,
strong interactions:
Colliders and
astro/cosmo



People

| | Colliders | Astroparticle | Theory | Total | M/F |
|------------------------|-----------|---------------|--------|-----------|-------------|
| Professors | 1 | 2 | 1 | 4 | 3/1 |
| Senior lecturers | 1 | 1 | 1 | 3 | 3/0 |
| Assoc. senior lecturer | 1 | 0 | 0 | 1 | 0/1 |
| Research engineers | | | | 2 | 2/0 |
| Researcher | 1 | 0 | 0 | 1 | 1/0 |
| Postdocs | 1 | 0 | 1 | 2 | 2/0 |
| PhD students | 5 | 2 | 2 | 9 | 7/2 |
| All | | | | 22 | 18/4 |



Hiring

- When recruiting PhD students and postdocs, we advertize internationally and openly
- Always many applicants
- Recruitment of senior staff: see later



Finances

University funding

| What | Sum (MSEK) | |
|----------------------------------|--------------|--|
| Faculty grant | 8.6 | |
| Faculty support for PhD students | 2.2 | On average |
| Office and lab space | 0.7 -2.7* | Receive from faculty Pay with Nuclear Phys. |
| Infrastructure fund | -0.3 | |
| Teaching | 5.4 | Shared 50 % with Nucl Phys |

*Will increase to 4.0 MSEK if Ångström is expanded

External grants (4-6 years)

| What | Sum (MSEK) | |
|-----------------------|------------|-------------|
| Personal/group grants | 15.5 | |
| National grants | 20.5 | (Transfers) |
| VR Consolidator Grant | 12** | |
| eSENCE | 0.8 | |



Leadership at division

- Division head \neq program professor
- Budget discussed in professor's meetings
- Division head responsible for budget
- Division head is also teaching coordinator



Link and communication with dept

- 4 of the faculty members have been elected to the **department board**
 - (2 ordinary members and 2 deputies)
- “**Beredningsgrupp**”
 - (Division head, program professor & dept board)
- Weekly meetings of **division heads**:
 - Minutes from these are available online, but people in the division are not always aware*
- **Medarbetarportalen** is a useful (?) administrative tool at the university, but not very transparent for users
- Strategy getaway: next page



Link and communication with faculty

- Faculty leadership appointed by electoral college
- Some communication at meetings of division heads
- “Fakultetskollegium”: limited attendance and usefulness
 - one-way communication
- E-meetings would be extremely useful
 - tools are available but not much used (cultural)
- “Strategy getaway” for division heads/program profs:
2-day meetings twice a year organized by physics dean or department
- Hard to find information about rules and decisions



Funding process

- We fund scientific staff **salaries** 75% or 85% from the faculty grant (75% for lecturers, 85% for professors)
- 15–25% **teaching**
- Typically 1 PhD student per research activity on faculty funds (collider, astroparticle, theory)
- External money used for PhD students and postdocs

- Previously: 25% salary, 50% external, 25% teaching
— Changed because of unpredictability of external funding

- Basic research—no “strategic” directed funding
- **Main source of external funding is VR**—increasingly difficult to obtain project grants



Strategy/Future at the division

- **Our strategy is bottom-up (grass-roots driven)**
 - Not driven by directed funding, but basic research
 - Evolution: from fixed target to colliders, astroparticle physics, theoretical particle physics
- **Retirement of 4 persons in near future**
 - Triggered strategy discussions for future development
 - letter to faculty (cc dept) → expert groups at dept
 - dept board → faculty → ??? → new hires?
 - Expert groups agreed with our letter



Other relevant issues/problems

- **Co-financing of large grants**
 - Good in many ways, but...
 - An increasing share of the budget
 - External funders dictate how we use our money
- **Very large grants**
 - Of course good for receiving institution, but...
 - Unpredictable, hard to focus research
 - External funders again dictate our research direction, often towards less basic research (not always!)
 - This is not always a bad thing: sometimes needed for opening and establishing new research fields
- **Political control of research**
 - Tendency lately, university eager to follow