



## Mid-term report of Sweden at ECFA meeting 2005-12-02

- RECFA in Stockholm 2001
- Swedish research policy/practice
- Swedish research groups
- Funding issues
- Problems
- Summary

# RECFA visit in Stockholm 2001

## worries:

- Phenomenology not sufficiently recognised  
⇒ broaden & strengthen phenomenology  
‘to ensure maximum benefit from LHC’
- Danger of too much fractionalisation in  
astroparticle effort
- Number of physicists and students decreasing  
in accelerator based particle physics
- Long doctoral study program (5 years with teaching)
- CERN fee not earmarked in Research budget

⇒ ECFA letter to minister of education/research

## development:

increase in astro  
& neutrino,  
not in LHC-related

~ same status

still trend to astro

~ same, but Bologna  
still is.

no visible effect

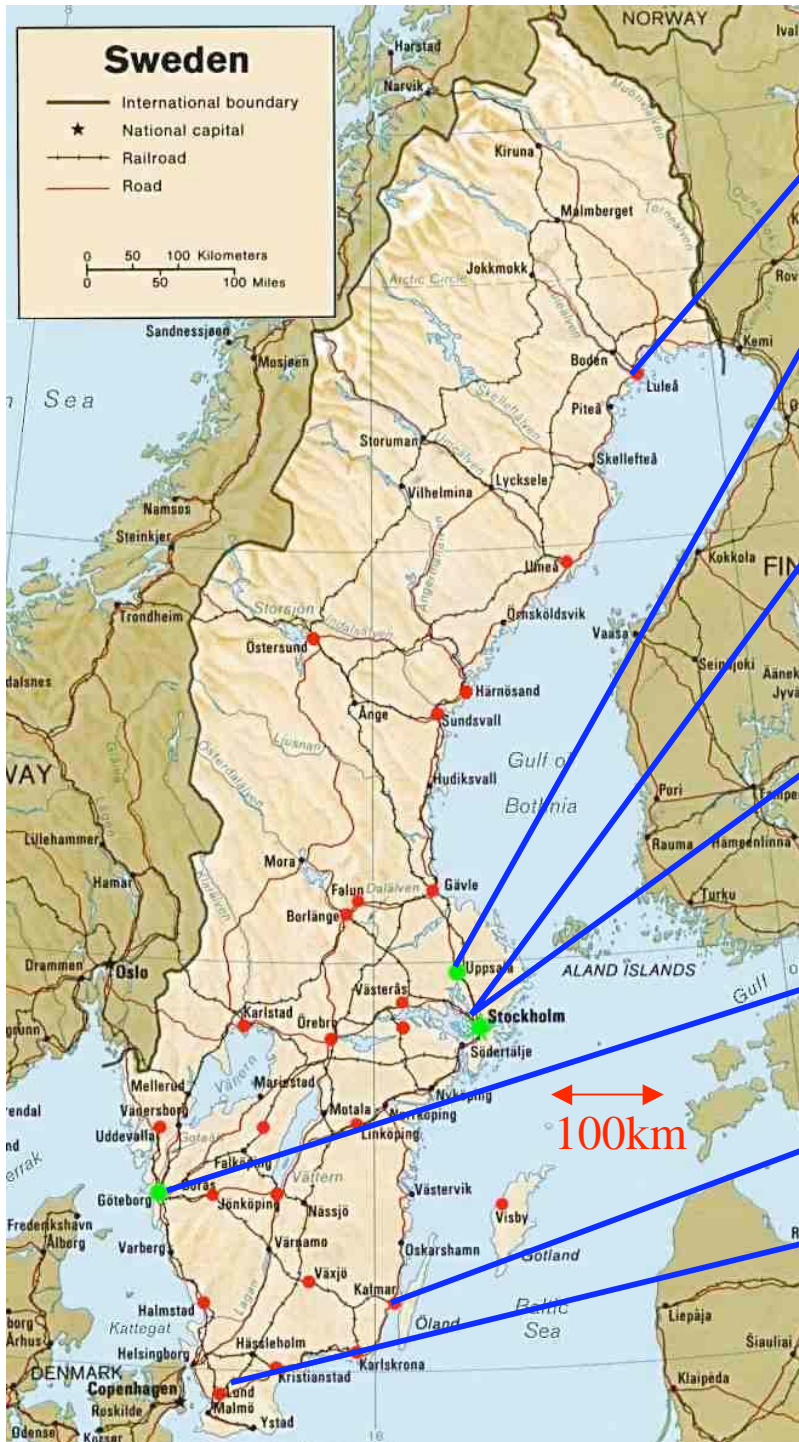
# Swedish policy:

- Expansion of higher education
  - marked cities on map →
    - many new universities & ‘colleges’
    - goal of 50% from school to ‘university’
- External funding for research
  - often earmarked for selected topics
- Priority on applied/‘useful’ research
- Favour ‘strong environments’



## → Consequences:

- Basic ‘faculty funding’ decreased
- No prof. ‘chairs’ with substantial resources
- External funding dominates budget,  
essential also for lecturer/professor salaries
- University overhead increased to  $\geq 35\%$  of grants
- Decreased funding for basic ‘pure’ science
- Changing ‘rules’ → complication for long-term projects
- New initiatives, e.g. large grants to ‘strong (local) research groups’



HEP groups / activities (CERN-focused) :

Luleå University of Technology:

Theory: phenomenology (astro)

Uppsala University:

Exp: D0/ATLAS, Amanda/Icecube,

Theory: phenomenology, strings...

Stockholm University:

Exp: D0/ATLAS, Amanda/Icecube

Theory: cosmology, astroparticle, strings

Royal Inst. of Technology:

Exp: D0/ATLAS, GLAST, Pamela, PoGO

Theory: phenomenology (neutrino)

Gothenburg Univ./Chalmers Inst.of Technology:

Theory: strings

Kalmar College: Exp: GLAST

Lund University:

Exp: H1, ATLAS, PHENIX/ALICE

Theory: phenomenology

<b>Group</b>		<b>permanent</b>	<b>time-limited</b>	<b>students</b>	<b>Sum</b>
Luleå:	phenomenology astro	2	0	4	6
Uppsala:	D0/ATLAS	2	1	2	5
	Amanda/Icecube	3	1	2	6
	phenomenology	1	1	1	3
	theory strings...	6	6	7	19
Stockholm:	D0/ATLAS	11	1	8	20
	Amanda/Icecube	3	1	3	7
	Astro Pamela...	1	0	5	6
	Cosmology, astro...	6	5	11	22
	theory neutrino	2	1	2	5
Gothenburg:	string theory	5	2	4	11
Kalmar:	astroparticle	1	0	1	2
Lund	H1	1	0	3	4
	ATLAS	3	2	0	5
	PHENIX/ALICE	3	0	2	5
	phenomenology	4	0	5	9
<b>Sum (women)</b>		<b>54 (4)</b>	<b>21 (2)</b>	<b>60 (16)</b>	<b>135 (22)</b>

<b>Group</b>	<b>permanent</b>	<b>time-limited</b>	<b>students</b>	<b>Sum</b>
Luleå: phenomenology astro	2	0	4	6
Uppsala: experiment	5	2	4	11
phenomenology	1	1	1	3
theory strings...	6	6	7	19
Stockholm: experiment	15	2	16	33
theory astro, v	8	6	13	27
Gothenburg: theory strings	5	2	4	11
Kalmar: experiment astro	1	0	1	2
Lund experiment	7	2	5	14
phenomenology	4	0	5	9
<b>Sum (women)</b>	<b>54 (4)</b>	<b>21 (2)</b>	<b>60 (16)</b>	<b>135 (22)</b>

# Sources for funding

- Swedish Research Council:
  - investments, running costs, salaries
  - new committee for infrastructure
- Wallenberg foundation:
  - investments, large amounts at single occasions
- Swedish Space Board
- Foundation for Strategic Research:
  - applied profile

# Investments in MSEK

mainly from Research Council and Wallenberg foundation

H1	5
PHENIX	9
D0	1
LHC	150
Amanda/Icecube	36
GLAST, Pamela, PoGo	33
SweGrid	37
CLIC/CTF3	6
Detector development	3

# Typical yearly grants MSEK

from Research Council for travel & running costs,  
and also salaries (close to 50%). Incl. ~30% OH !!

String theory	5.3
Astroparticle theory	2.4
Phenomenology	2.3

Amanda/Icecube	4.1
H1	0.6
D0	0.7
ATLAS	8.3
PHENIX	1.4
ALICE	1.0

# Structural problems:

- Fractionalisation
  - individual research profile needed for promotion/grant
- Basic faculty funds decreased
  - no ‘free’ money for ‘anything’
  - not even sufficient for lecturer/professor salaries
- Research Council budget for HEP grants
  - ~50% to salaries, lecturers/professors should be fully financed by universities
  - LHC-related cost can kill individuals/groups
  - hard to gain from non-HEP budgets

# Cost increases for LHC experiments

- Repeated cost increases → CERN unpopular
- So far covered by additional investment funds (tricky to get, but succeeded),  
not likely to be possible when LHC runs, e.g.
  - ~3 MSEK/year for stationing at CERN
  - ~3 MSEK/year for maintenance & operationIf taken from Research Council's regular HEP budget  
⇒ disaster !!! Drastic cuts in salary/travel funds !?
- If cuts for HEP groups → less CERN support

# Summary

- + Large activities in astroparticle physics & strings
- Lack of people / resources for LHC phenomenology
- Research groups often of subcritical size
- + Substantial funding for investments
- Insufficient funding for running, due to salary costs
- Increase of LHC costs may hit group budgets
- CERN fee not earmarked in research budget