

Education system

RECFA visit of the Czech Republic, March 27, 2015

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Student's path

3 4 5 6 7 8 9 10 11



Pre-primary

Primary

11 12 13 14 15 16 17 18 19



Primary

Secondary

Lower secondary

Upper secondary

19 20 21 22 23 24 25 26 27 28



Tertiary BSc

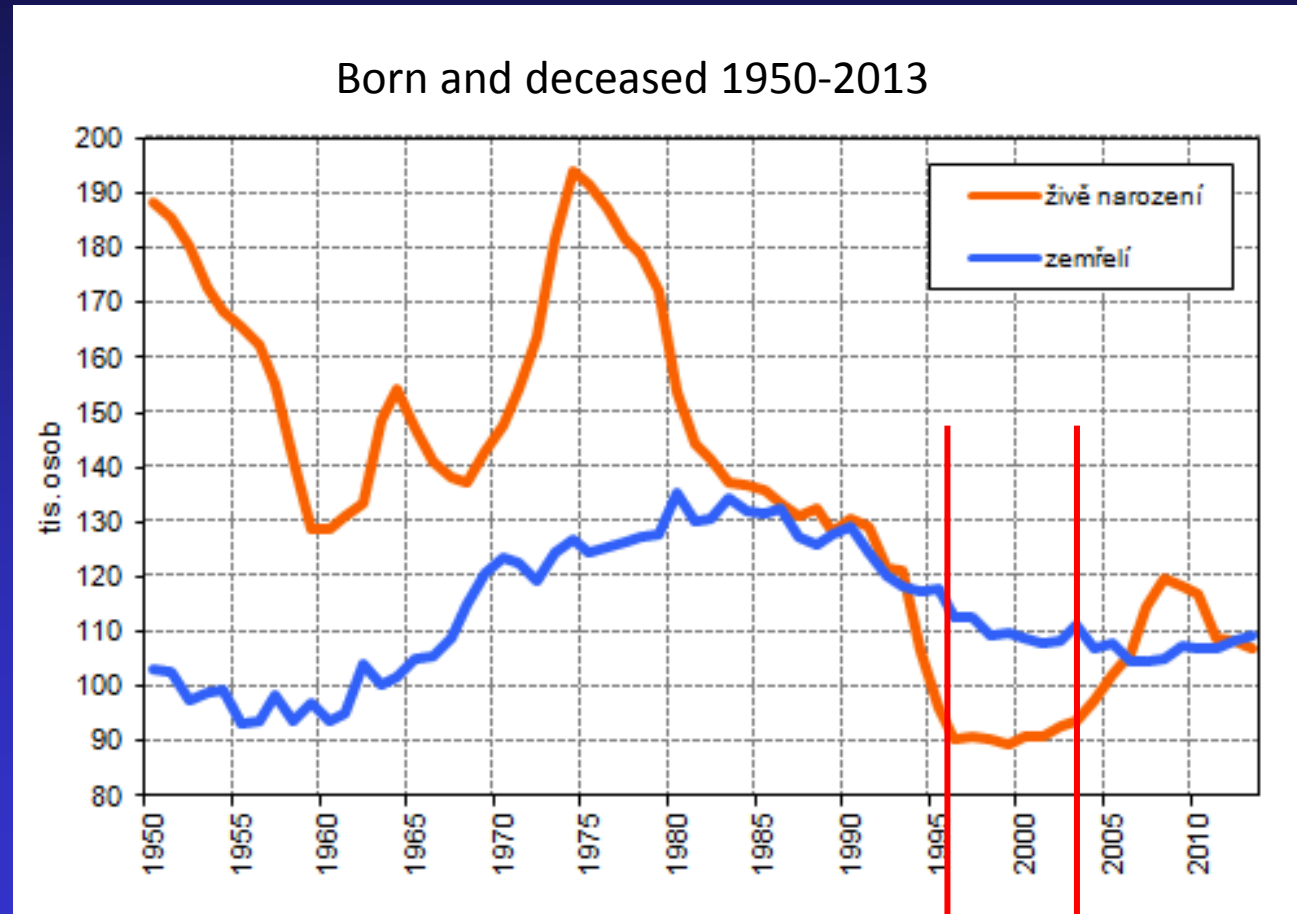
MSc

PhD

Physics starts here

Students' numbers

Czech republic has 10 528 477 citizens (Sept. 2014),
evolution
in time:



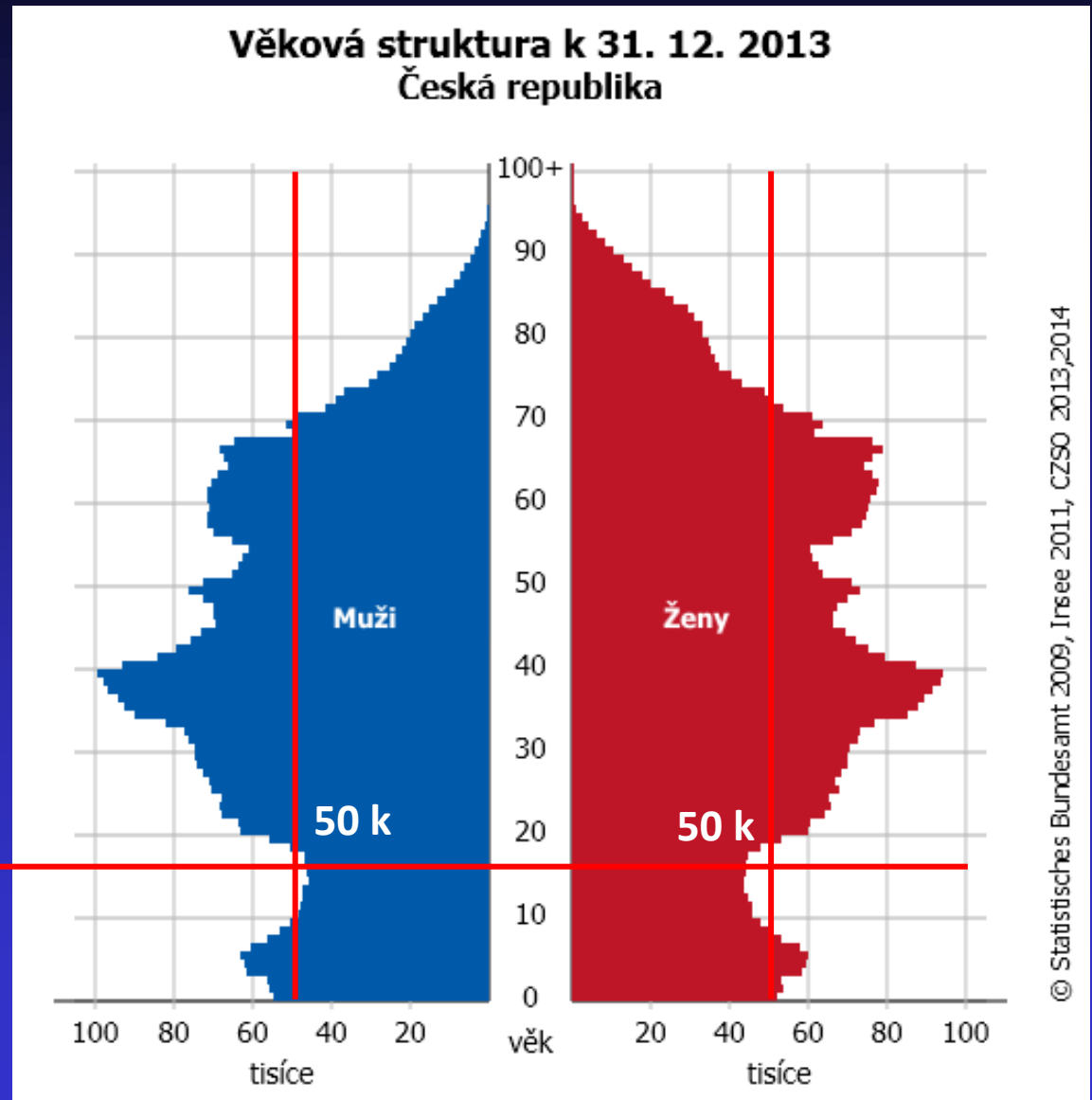
19 years ago

12 years ago

Students' numbers

Czech republic has
10 528 477 citizens
(Sept. 2014).

Now at age 19,
coming to the
university



Students and teachers (2012/13)

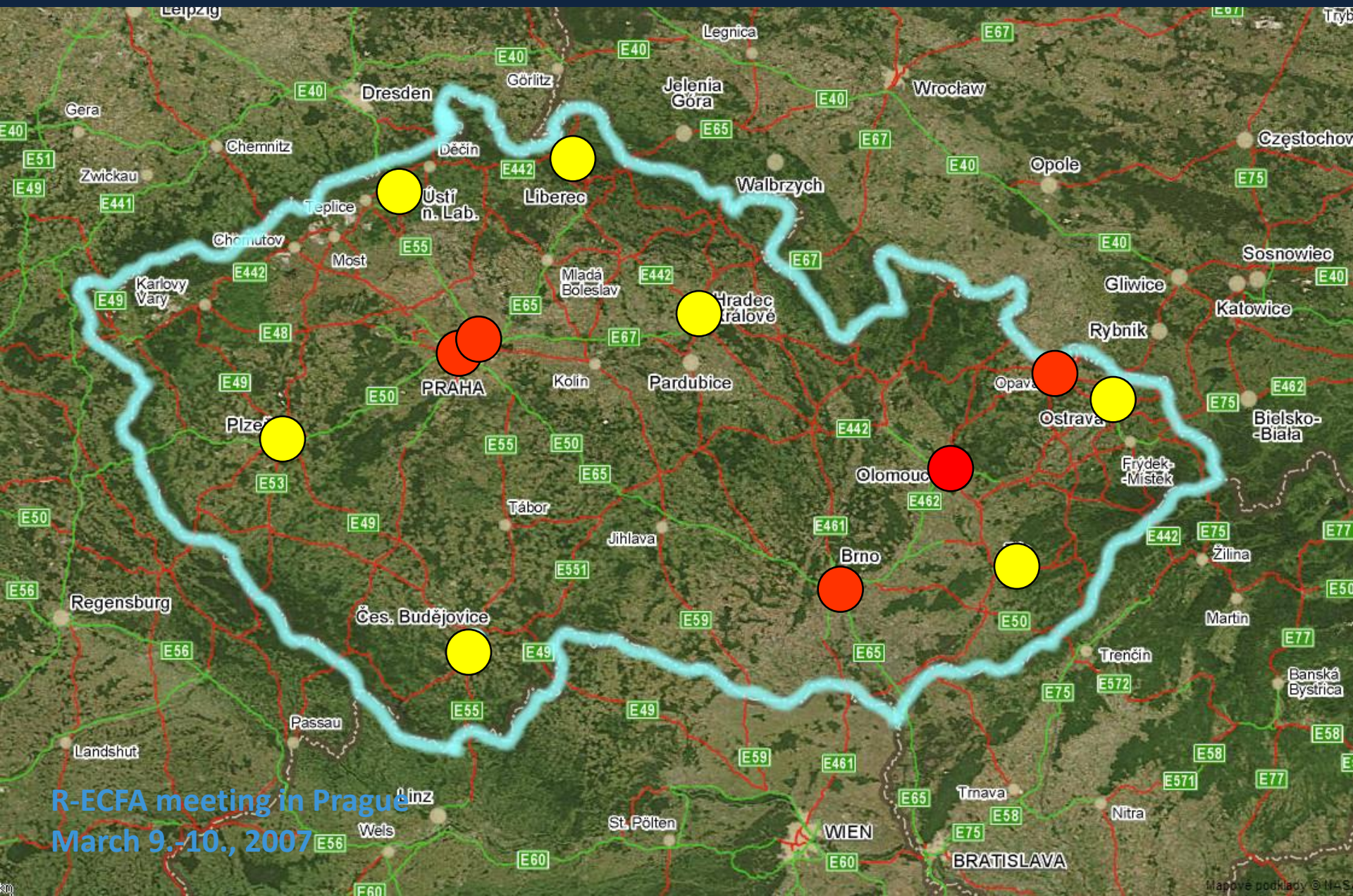
	Pupils/Students	Teachers/Staff
Primary schools	808 000	60 000 (84% women)
Secondary schools (gymnasium)	130 000	13 000 (63% women)
Secondary technical and practical schools	180 000	
Universities	282 000 (+102 000 combined) 342 000 Czech 88% at public universities	22 000 (36% women)

Universities relevant for physics study

	kstudents*	Teachers	Particles or Theory
<u>Charles University in Prague</u>	41	+	+
<u>Univ. of South Bohemia, České Budějovice</u>	9	+	-
<u>University of J. E. Purkyně, Ústí nad Labem</u>	8	+	-
<u>Masaryk University, Brno</u>	34	+	+
<u>Palacký University, Olomouc</u>	17	+	+
<u>University of Ostrava</u>	6	+	-
<u>University of Hradec Králové</u>	6	+	-
<u>Silesian University in Opava</u>	5	+	+
<u>Czech Technical University in Prague</u>	20	+	+
<u>University of West Bohemia in Pilsen</u>	11	+	-
<u>Technical University, Liberec</u>	7	+	-
<u>Brno University of Technology, Brno</u>	19	+	-
<u>VŠB - Technical University, Ostrava</u>	16	+	-
<u>Tomas Baťa University in Zlín</u>	9	+	-

*MEYS, number of financed students

Universities relevant for physics study



R-ECFA meeting in Prague
March 9.-10., 2007

Start of the career in physics

After PhD and some postdoc experience ...

... about 1-2 positions per year in the CR available in particle physics

Brutto wage about 35 – 40 k CZK, slightly above Prague average

Average gross monthly wage by activity of CZ-NACE ¹⁾	2014			
CZK, per full-time equivalent employee	Q1	Q2	Q3	Q4
Czech Republic, total	24 817	25 492	25 213	27 200
Including e.g.:				
Industry, total	25 184	26 133	25 353	27 637
Accommodation and food service activities	13 661	14 072	14 083	14 562
Information and communication	48 220	46 327	46 727	48 176
Financial and insurance activities	52 387	48 695	45 029	46 513
Professional, scientific and technical activities	31 501	32 196	31 431	34 772
Administrative and support service activities	16 579	16 751	16 565	16 997
Public administration and defence; compulsory social security	26 174	27 208	27 164	29 859
Education	23 129	24 485	24 752	28 751

Teachers:

... good teachers attract students (and the other way around)

- educated separately from physics students
- usually specialized in two sciences,
best case being physics combined with mathematics
- no centralized “quality control”
- no systematic in-service training

Teachers & Particle Physics

- We have no curricula but „Framework Educational Programmes“ ... up to atoms and nuclear decays.
- Teachers have heard possibly something about particles, but probably didn't digest it
- More than 100 Czech teachers participated in the CERN Teachers weeks or other programmes ... teachers and students are exposed to our outreach (V. Wagner presentation)

They are happy to participate, they are excited, but what remains? Less than 10% become „ambassadors of particle physics“

Students path to particle physics at CU

- Selecting Charles University for university study:
good reasons ... tradition and reputation,
... extensive outreach activities








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Lectures, Seminars and Courses

- [School for Teachers of Computer Science](#) 
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- [Soustředění mladých matematiků a fyziků](#) 
- [Letní matematicko-fyzikální soustředění \(LMFS\)](#) 
- [Škola matematiky a fyziky – zimní a letní](#) 

Students path to particle physics at CU

- Selection of bachelor thesis – about 10/year in particle physics
- Introductory lectures in nuclear and particle physics
- Selection of the field for master study – about 5/year in the branch „Nuclear and Particle physics“
- Selection of the topic for the master thesis, life & work within the Institute of Particle and Nuclear Physics
- Decision whether to stay for PhD study ... now we have 20

“Summary”

- Number of students sufficient to survive
- Reasonable rate of newcomers to the particle physics,
- Reasonable balance with retired colleagues,
- Still difficult to attract people after postdoc positions from outside
- No clear clue to teachers
- Outreach starts to be common for reasonable part of young physicists