


Experimental particle. physics

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how to derive the Bethe-Block formula

“Culture isn't knowing ~~when~~
~~Napoleon died~~. Culture means
knowing how I can find out in two
minutes.”

Umberto Eco

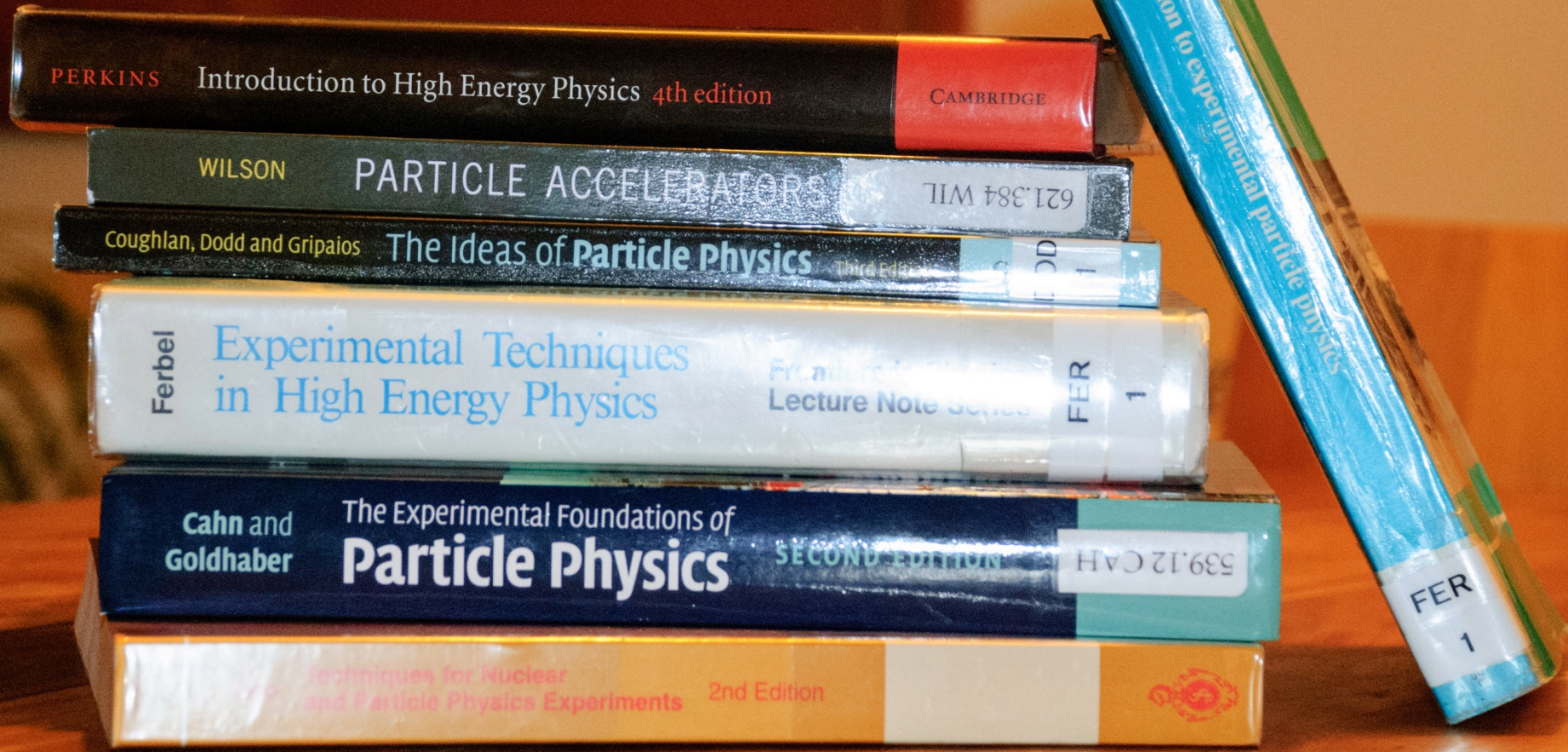
<http://www.spiegel.de/international/zeitgeist/spiegel-interview-with-umberto-eco-we-like-lists-because-we-don-t-want-to-die-a-659577-2.html>

“If I could remember the names of all these particles, I'd be a botanist!”

Enrico Fermi



<http://pdg.lbl.gov/>



Program

| Schedule 2018 | Wednesday Jan 24 th | Thursday Jan 25 th | Friday Jan 26 th | Monday Jan 29 th |
|----------------|---|---|--|--|
| 09:00 | Experimental Subatomic Physics lecture 1 Marco Delmastro <i>LAPP Annecy</i> | Experimental Astroparticle Physics lecture 1 François Montanet <i>LPSC Grenoble</i> | Experimental Subatomic Physics lecture 4 Marco Delmastro <i>LAPP Annecy</i> | Experimental Astroparticle Physics lecture 3 François Montanet <i>LPSC Grenoble</i> |
| 10:30 10:45 | Coffee Break | Coffee Break | Coffee Break | Coffee Break |
| 12:15 | Experimental Subatomic Physics lecture 2 Marco Delmastro <i>LAPP Annecy</i> | Experimental Astroparticle Physics lecture 2 François Montanet <i>LPSC Grenoble</i> | Experimental Subatomic Physics tutorial 2 Marco Delmastro <i>LAPP Annecy</i> | Experimental Astroparticle Physics tutorial 1 François Montanet <i>LPSC Grenoble</i> |
| | BREAK | BREAK | BREAK | WORKING LUNCH |
| 14:00 | Experimental Cosmology tutorial 2 Juan Macias Perez <i>LPSC Grenoble</i> | Experimental Subatomic Physics lecture 3 Marco Delmastro <i>LAPP Annecy</i> | Experimental Subatomic Physics lecture 5 Marco Delmastro <i>LAPP Annecy</i> | Experimental Subatomic Physics tutorial 4 Marco Delmastro <i>LAPP Annecy</i> |
| 15:30 15:45 | Coffee Break | Coffee Break | Coffee Break | Coffee Break |
| | Experimental Cosmology tutorial 3 Juan Macias Perez <i>LPSC Grenoble</i> | Experimental Subatomic Physics tutorial 1 Marco Delmastro <i>LAPP Annecy</i> | Experimental Subatomic Physics tutorial 3 Marco Delmastro <i>LAPP Annecy</i> | Experimental Subatomic Physics tutorial 5 Marco Delmastro <i>LAPP Annecy</i> |
| 17:15 | | | | Future High-Energy Linear Collider JUAS Seminar Louis Rinolfi |

Program

Wednesday

Lecture 1

units, quantities,
kinematics, measurements

Lecture 2

a few things
about
particle accelerators

Homework

particle kinematics
(exercises)

Thursday

Lecture 3

particle interactions in
particle detectors

Tutorial A

particle kinematics

Tutorial B

*particle interactions
and detector response*

Homework

classical paper
(reading + presentation)

Friday

Lecture 4

systems used to identify
and measure particle
properties

Lecture 5.a

particle experiment design

Tutorial C.a

event display challenge

Lecture 5.b

S/B optimization

Tutorial D

*how to optimize the signal
significance?*
(have your laptop ready!)

Homework

Nobel Lecture
(reading + video)

Monday

Tutorial C.b

*analysis of “classic”
experiments*
(students’ presentation)

Lecture 6

detection of “invisible”
particles