

## **An introduction of Elementary Particle Physics (EPP)**

(13 Lectures, 13 hours)

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- 1-2. A brief introduction (history ...)
- 3-6. The tools (accelerators, Particle interaction with matter, targets, detectors, kinematics)
7. The elementary particles (hadrons, baryons, mesons)
8. The fundamental particles (quarks, leptons, gauge bosons)
9. The forces (gravitation, nuclear forces)
10. The fundamental interactions (strong and electro-weak IA)
11. The Standard Model of EPP
12. Physics Beyond the Standard Model (BSM)
13. Spin-offs – Applications of EPP

### **Literature:**

1. “Introduction to Elementary Particles”, David Griffiths, second edition, Weinheim, 2008.
2. “Modern Particle Physics”, Mark Thomson, Cambridge University Press, 2013.
3. “The Physics of Particle Accelerators”, Klaus Wille, Cambridge University Press, 2000.
4. “Particle Detectors”, Claus Grupen and Boris Shwartz, second edition, Cambridge University Press, 2008.
5. “Experimental Techniques in Nuclear and Particle Physics”, Stefaan Tavernier, Springer, 2010.
6. “Radiation Detection and Measurement”, Glenn F. Kroll, third edition, printed in USA, 1999.
7. “[Elementary Particle Detectors](#)”, Edisher Tskhadadze et al., 2018, E-book (Georgian).