

Approximate symmetries of the Standard Model for elementary particle interactions

KSETA lectures by

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13.06.2022	14:00 – 15:30 h	room 3/1
14.06.2022	11:30 – 13:00 h	room 3/1
15.06.2022	14:00 – 15:30 h	Lehmann lecture hall
17.06.2022	11:30 – 13:00 h	room 3/1

Abstract:

Several different approximate approximate symmetries of the standard model for particle physics and cosmology are introduced and their implications for experiment and observation are discussed. These symmetries include, baryon number, heavy quark symmetry and scale invariance. The latter is realized only in the early universe but has implications for the perturbations in the energy density that influence measurements of the microwave background anisotropy and the large scale distribution of galaxies. Baryon number violation has not been observed in laboratory experiments but is required to generate the cosmological baryon number excess. Finally, some of the predictions of the approximate heavy quark symmetry of the strong interactions will be studied in more detail in the upcoming Belle II experimental program.