

PHY397K - NUCLEAR PHYSICS - 12

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Spring 2015, Unique numbers: 57115
RLM 5.116, TTH 12:30 - 2:00 pm

Christina Markert
Office: RLM: 10.305
Phone: 512 471 8834
Email: cmarkert@physics.utexas.edu

Observation laws

Table 13.1 The conservations laws of particle physics: \checkmark = conserved: \times = not conserved; $-$ = not relevant.

Quantity	Strong interaction	Electromagnetic interaction	Weak interaction
Momentum	\checkmark	\checkmark	\checkmark
Total energy	\checkmark	\checkmark	\checkmark
Angular momentum	\checkmark	\checkmark	\checkmark
Electric charge	\checkmark	\checkmark	\checkmark
Quark number*	\checkmark	\checkmark	\checkmark
Quark flavour	\checkmark	\checkmark	\times
Lepton generation number*	$-$	\checkmark	\checkmark
Parity	\checkmark	\checkmark	\times
Charge conjugation quantum number	\checkmark	\checkmark	\times
Isotopic spin	\checkmark	\times	\times
Baryon number*	\checkmark	\checkmark	\checkmark

* May not be conserved if grand unified theories correctly predict the existence of leptoquarks (Section 13.6).