

# Fundamental Problems In Elementary Particle Physics

ELEMENTARY PARTICLES								NOVA
	CONTEXT	MASS	CHARGE	SPIN	STRENGTH	RANGE	OBSERVED?	SPARTICLE
<b>BOSONS (forces)</b>								
GRAVITON	gravity	0	0	2	$10^{-38}$	infinite	no	gravitino
PHOTON	electromagnetism	0	0	1	$10^{-2}$	infinite	yes	photino
GLUON	strong force	0	0	1	1	$10^{-13}$	indirectly	gluino
<b>WEAK GAUGE BOSONS</b>								
W <sup>+</sup>	weak force	80,000	1	1	$10^{-13}$	$10^{-16}$	yes	W <sup>+</sup> wino
W <sup>-</sup>	weak force	80,000	-1	1	$10^{-13}$	$10^{-16}$	yes	W <sup>-</sup> wino
Z <sup>0</sup>	weak force	91,000	0	1	$10^{-13}$	$10^{-16}$	yes	zino
HIGGS BOSON	weak force	>78,000	0	0	[ ? ]	[ ? ]	no	Higgsino
<b>FERMIONS (matter)</b>								
<b>LEPTONS, FAMILY 1:</b>								
ELECTRON	radioactive decay	0.51	-1	1/2	n/a	n/a	yes	selectron
ELECTRON NEUTRINO	atomic structure	0?	0	1/2	n/a	n/a	yes	electron sneutrino
<b>QUARKS, FAMILY 1:</b>								
UP	atomic nuclei	5	2/3	1/2	n/a	n/a	indirectly	up squark
DOWN	atomic nuclei	9	-1/3	1/2	n/a	n/a	indirectly	down squark
<b>LEPTONS, FAMILY 2:</b>								
MUON		106	-1	1/2	n/a	n/a	yes	muon slepton
MUON NEUTRINO		~0	0	1/2	n/a	n/a	yes	muon sneutrino
<b>QUARKS, FAMILY 2:</b>								
CHARM		1,400	2/3	1/2	n/a	n/a	indirectly	charm squark
STRANGE		170	-1/3	1/2	n/a	n/a	indirectly	strange squark
<b>LEPTONS, FAMILY 3:</b>								
TAU		1,784	-1	1/2	n/a	n/a	yes	tau slepton
TAU NEUTRINO		>35	0	1/2	n/a	n/a	yes	tau sneutrino
<b>QUARKS, FAMILY 3:</b>								
TOP		174,000	2/3	1/2	n/a	n/a	indirectly	top squark
BOTTOM		4,400	-1/3	1/2	n/a	n/a	indirectly	bottom squark

Fundamental Problems in Elementary Particle Physics, Proceedings of the Fourteenth Conference on Physics at the University of Brussels, October Proceedings, 14th Solvay Conference on Physics: Fundamental problems in elementary particle physics: Brussels, Belgium, October, , English, Conference Proceedings edition: Fundamental problems in elementary particle physics / proceedings of the Fourteenth Conference on Physics at. This book examines the types of problems facing high-energy physicists. read full Technical and Organizational Problems of Elementary-Particle Physics this book starts with an overview of the fundamental properties of Dirac poles, with. VI - Problems of Elementary-Particle Physics Report of an International Conference on Fundamental Particles and Low Temperatures held at the Cavendish. Hierarchy problem: Why is gravity such a weak force? the existence of a fundamental particle with mass Are they a tightly-bound system of five elementary particles, or a more. William Gilbert formulated over years ago a postulate that can be considered as the main principle of modern natural sciences [1]: All theoretical constructs. Thirty Unsolved Problems in the Physics of Elementary Particles. Article (PDF Available) sends one of the major unresolved issues in contemporary physics. The electromagnetic, weak and strong interactions among the elementary In the Standard Model of particle physics the basic forces other than gravity are. theoretical discoveries in fundamental physics at that time and later were the . resolution for major problems of elementary particle physics. The Standard Model of elementary particles and interactions has been developed. 25/11/ Open problems in fundamental physics. 9 d p h. ?. Some scientists do believe there are more fundamental particles (or strings, in the case of string theory). Others believe it isn't so much that. The Structure and Evolution of Galaxies: Chair: Robert Oppenheimer (Princeton). Fundamental Problems in Elementary Particle Physics: Chair: Christian. Modern physics speaks of fundamental building blocks of Nature, where The search for the origin of matter means the understanding of elementary particles. . One of the problems in particle physics is the bewildering number of elementary. Grant. [Fundamental problems of elementary particle physics, quantum field theory, cosmology and particle interaction at high energies.] Original in Russian: . Program Theme. The discovery of the Higgs particle was a cornerstone in the development of the theory of elementary particle physics and has opened the door. Elementary-Particle Physics: Revealing the Secrets of Energy and Matter ( ) .. Recommendation for Addressing Important Fundamental Physics Problems.

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