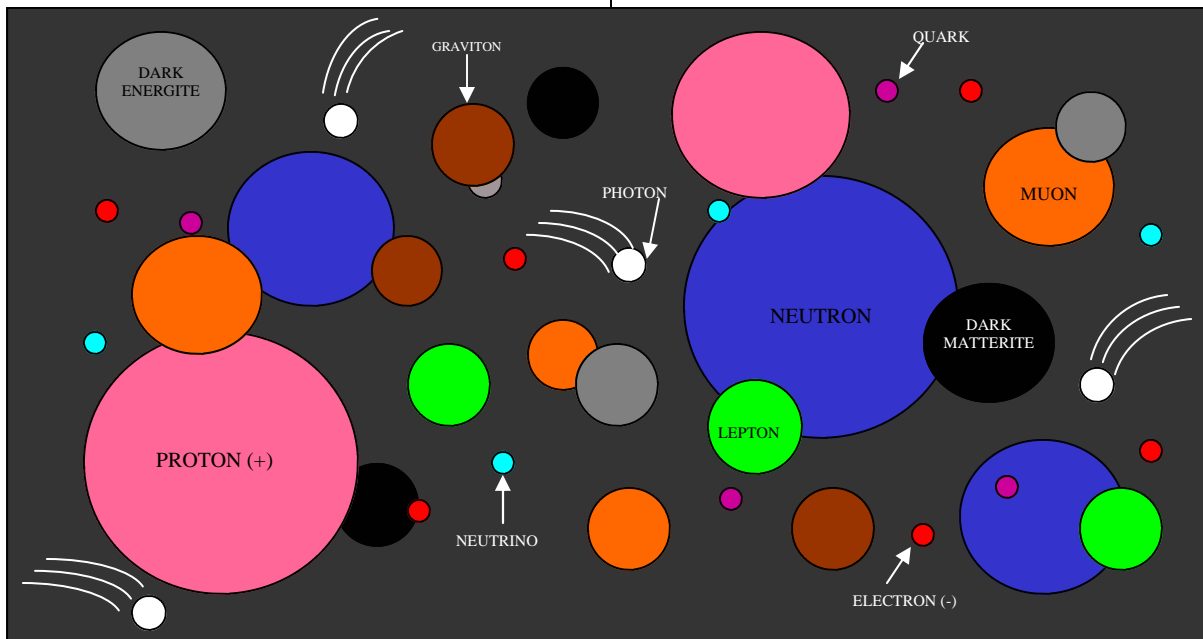


Figure 1.5: PARTICLE PHYSICS

ELEMENTARY PARTICLE REPRESENTATIONS



ELEMENTARY PARTICLE INTERACTIONS

| | PARTICLE | CONTEXT | OBSERVED OR NOT | SPARTICLE (<i>Supersymmetry</i>) |
|-------------------|-------------------------------|-------------------|---------------------------|------------------------------------|
| Forces of Nature | BOSONS | | | |
| | GRAVITON | GRAVITY | NO (yet to be discovered) | GRAVITINO |
| | PHOTON | ELECTROMAGNETISM | YES | PHOTINO |
| | GLUON | STRONG FORCE | INDIRECTLY | GLUINO |
| | WEAK W & Z BOSONS | WEAK FORCE | YES | WINO & ZINO |
| | HIGGS BOSON | WEAK FORCE | YES (as of 2012) | HIGGSINO |
| Matter (Fermions) | LEPTONS, First Family | | | |
| | ELECTRON | RADIOACTIVE DECAY | YES | SELECTRON |
| | ELECTRON NEUTRINO | ATOMIC STRUCTURE | YES | ELECTRON SNEUTRINO |
| | QUARKS, First Family | | | |
| | UP QUARK | ATOMIC NUCLEI | INDIRECTLY | UP SQUARK |
| | DOWN QUARK | ATOMIC NUCLEI | INDIRECTLY | DOWN SQUARK |
| | LEPTONS, Second Family | | | |
| | MUON | == | YES | MUON SLEPTON |
| | MUON NEUTRINO | == | YES | MUON SNEUTRINO |
| | QUARKS, Second Family | | | |
| | CHARM QUARK | == | INDIRECTLY | CHARM SQUARK |
| | STRANGE QUARK | == | INDIRECTLY | STRANGE SQUARK |
| | LEPTONS, Third Family | | | |
| | TAU | == | YES | TAU SLEPTON |
| | TAU NEUTRINO | == | YES | TAU SNEUTRINO |
| | QUARKS, Third Family | | | |
| | TOP QUARK | == | INDIRECTLY | TOP SQUARK |
| | BOTTOM QUARK | == | INDIRECTLY | BOTTOM SQUARK |

*Also refer to Figure 3.1