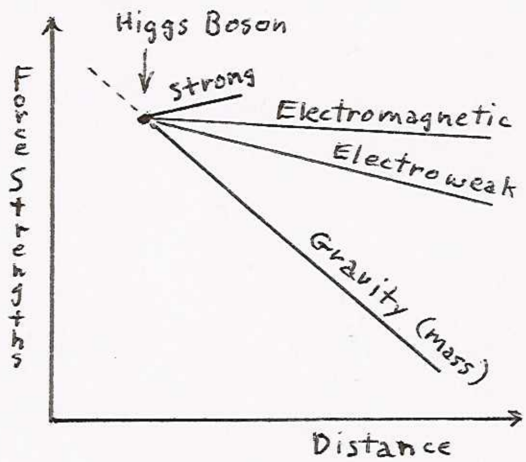
Gravitational Cascade

by William Gray

The Standard Theory predicted 3 particles called $W^{+/-}$ and Z^0 bosons with 82 GeV and 93 GeV masses respectively that are thought to carry the Electroweak force that controls matter's stability. Electroweak and Electromagnetic forces appear to be the same force in very high energy particles but at lower energies W and Z bosons with mass carry the weaker Electroweak force and photons without mass carry the stronger Electromagnetic force. Since the mass in bosons seems to be the only difference in the forces it is thought that there is another particle called a Higgs boson that is the cause of mass in particles.

It is believed that a Higgs boson has a mass about 1 TeV and that it can be isolated by injecting 40 TeV into a proton with a mass of slightly less than 1 GeV (1 TeV = 1000 GeV) so it requires a tremendous amount of energy. Scientists are attempting to use Super Colliders like the one a CERN to achieve this but there may be a problem. It is believed that gluons carry the Strong force, photons carry the Electromagnetic force, W and Z bosons carry the Electroweak force and Higgs bosons cause the mass force, and that they all converge into the same strength at very short distances.

But the problem is that if a Higgs boson causes the mass force and it exceeds the other forces then it would collapse matter's structure and absorb its energy. Such an increase in mass force would create a gravitational singularity, or Black Hole, that only absorbs energy and only gets bigger.



And once the Higgs boson is isolated and the effect of its mass force manifests it can't be stopped since there are no other stronger forces to contain it. The normal relative strengths of the forces are:

Gravity	10^0	(3-dimensional)
Electroweak	10^{37}	(1-dimensional)
Electromagnetic	10^{41}	(1-dimensional)
Strong	10^{43}	(1-dimensional)

But under the conditions of the Higgs boson's creation all of the forces will be in the order of 10^{43}, and while normal subatomic particles like the tau, kaon, pion and muon produced in nuclear interactions decay to a stable electron by giving up their excess energy, the Higgs boson can't decay because its mass force is too strong for energy to leave or transfer to one of the other forces.

Outside its region of creation of the Higgs boson there is nothing to prevent energy from decaying to stable forms of matter controlled by the Strong, Electromagnetic or Electroweak forces, but inside its creation region the mass force is so strong that it can't decay and its gravity would exceed the other forces ability to contain energy so it would collapse stable matter into it. And once we have achieved this gravitational cascade what do we intend to do with it, how are we going to contain it, and where will we be disposing of it?