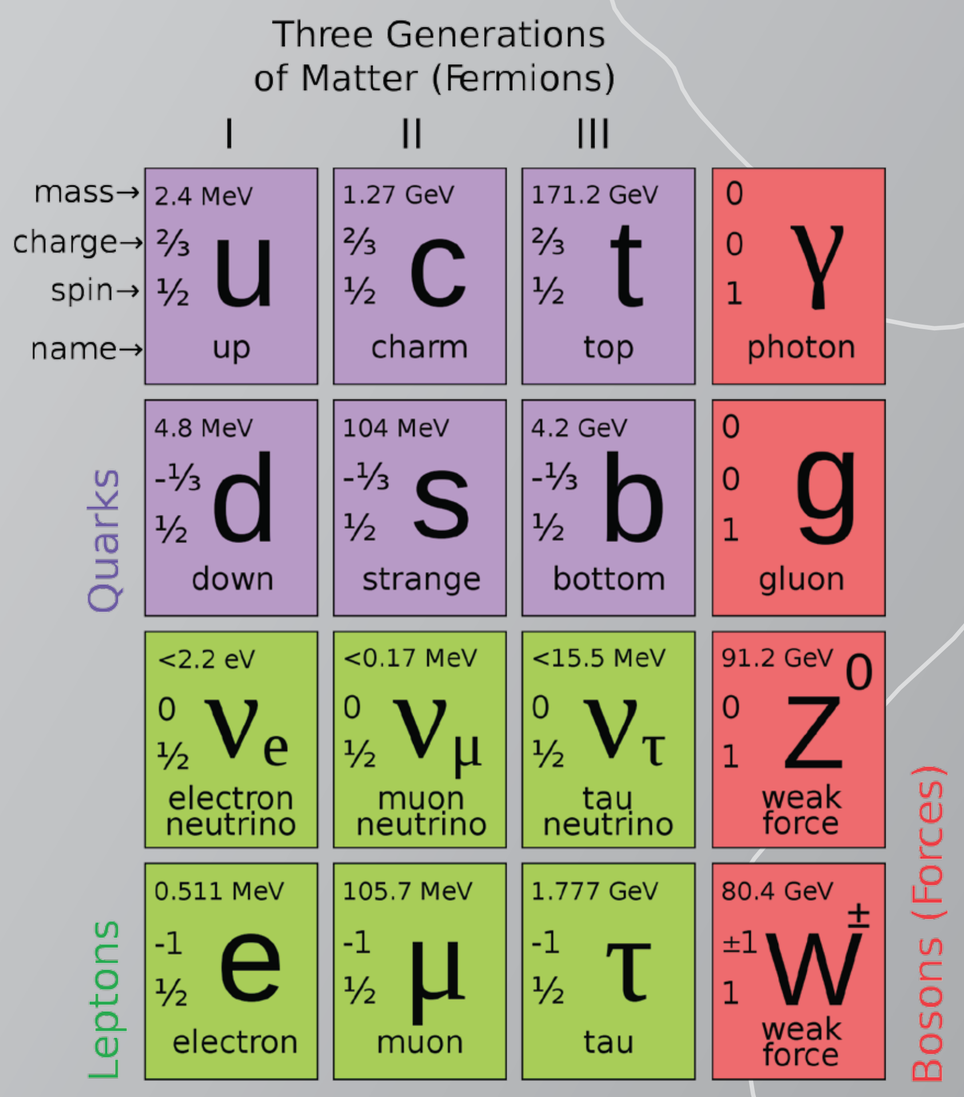
Current research programmes include the following:

Gauteng Node
(University of Witwatersrand)

Beyond the Standard Model:

Our current understanding of the universe is incomplete and our accepted theory for particle interactions, the Standard Model, leaves many unresolved questions. Among these questions is why there is a disproportionate amount of matter in the universe (compared to antimatter), why gravity is so much weaker than the other fundamental forces etc. Currently, the fundamental goal of all theoretical particle physics has been to develop a single theoretical framework for all the fundamental forces, which requires the understanding of current experiments and to make predictions for new physics at future experiments. As such, much of the efforts to find these new physics are focused on new collider experiments such as the Large Hadron Collider.

This research project of NITheP, focuses on how possible extensions to the Standard Model may be experimentally distinguished. In particular the focus is on the study of B meson decays, which provide the most promising avenue for detecting Supersymmetry effects, as well as effects from alternatives to the Higgs mechanism, while the contributions to precision electro-weak experiments from Little Higgs theories and universality studies of new particle interactions are also investigated. Focus on the decays of collider produced black holes, which provide the best way to test for theories involving extra dimensions, are also pursued at this NITheP node.



For more information on this project, contact Dr Alan Cornell at Alan.Cornell@wits.ac.za

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All information is also available on our website at www.nithep.ac.za

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