Enriching the Standard Model: What if the Higgs has many brothers?

by Prof Chang Ngee Pong

About the Talk
With the discovery at CERN of the Higgs particle, there is great excitement in the world of high-energy physics because it ‘confirms’ the Standard Model. The origin of all constituent quark and lepton masses may be attributed to this one Higgs.

But few people will admit that the Standard Model is pretty, because the Yukawa coupling matrices are the most complex one possible.

In this talk, Prof Chang will explore the consequences with simplifying the fundamental Yukawa coupling, and let instead the complexity be associated with a rich family of Higgs bosons.

Remarkably, it is even possible to make a prediction on the masses of some of this rich family.

About the Speaker
Prof Chang Ngee Pong is currently a professor of physics at the City College of CUNY. His area of specialisation is in High Energy Physics, and some of his research interests include spontaneous symmetry breaking in gauge theories of grand unification, implications for proton decay and the origin of neutrino masses.

Most recently, he has been working on the introduction of an extended family of the sextuplet CP-even and triplet CP-odd Higgs fields that couple to the 3 generations of quarks, following the suggestion of Friedberg-Lee.

Prior to joining the Institute of Advanced Studies (IAS) at NTU as a senior Fellow, he has held visiting positions at Ecole Normale Superior, CERN, Max Planck Institute Munich, University of Tokyo & Yukawa Institute as JSPS Fellow, KEK, Institute of Physics Academia Sinica Taiwan, the Institute for Advanced Study, Princeton in New Jersey, and elsewhere.