



Invited Speaker 5 (online)

Yang-Mills Theory and the Physical Mathematics Revolution

Meng-Chwan Tan

National University of Singapore

Short Abstract:

I will explain how Yang-Mills theory, first formulated to describe the non-gravitational forces of the universe, has led to the Physical Mathematics revolution where physics is once again helping to define new mathematics, like how Newton's study of motion helped to define calculus. To this end, I will elucidate the theory's ubiquitous presence in almost everything from quantum gauge theories to string theory, and its far-reaching mathematical implications in these various contexts.

Short Bio:

Prof Tan was formerly a Major in the Republic of Singapore Air Force who completed his part-time PhD with NUS in 2007. His doctoral thesis was examined and endorsed by Einstein's successor to the title of the greatest theoretical physicist of our time, Edward Witten, who also invited Prof Tan to the legendary Institute for Advanced Study in Princeton, Einstein's old stomping ground, to be a postdoctoral member from 2007-2008. Prof Tan then went on to the prestigious California Institute of Technology as a postdoctoral fellow in 2009 before returning to Singapore to join NUS in 2010, where he was swiftly promoted to Associate Professor with tenure in 2014. He is the founder and leader of the NUS String Theory Group, Southeast Asia's first and only String Theory group, and is also Assistant Dean of Science.