

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
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Seminar Notice

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Theoretical Physics Department

Title:	Searches for the Higgs pair production at the HL-LHC and beyond
Speaker:	Shankha Banerjee, Institute for Particle Physics Phenomenology, Durham University
Date:	January 16, 2018 (Tuesday)
Time:	3:45 p.m.
Venue:	Theoretical Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS
Abstract:	<p>In this talk, we will discuss the present status of the non-resonant and resonant di-Higgs searches at the LHC. We will then quantify the prospects of witnessing signatures of these elusive modes in the $b\bar{b}\gamma\gamma$, $b\bar{b}\tau^+\tau^-$, $b\bar{b}W^*W^*$, $WW^*\gamma\gamma$ and the $4W$ channels at the high luminosity run of the LHC (HL-LHC) for a non-resonant SM-like production. Furthermore, we will discuss the status of invisible Higgs decays in the context of a Higgs pair production (resonant and non-resonant), where one of the Higgs bosons may decay invisibly. Contaminations to these final states are possible from various new physics scenarios and we will quantify some such new physics cases which may contaminate our di-Higgs signals. Finally, we will discuss the prospects of measuring the Higgs self-coupling at the futuristic 100 TeV collider when the two Higgs bosons are produced in association with an additional hard jet.</p>

All are cordially invited to attend the seminar