Contribution ID: **321** Type: **Oral presentation using Zoom**

Probing Extended Scalar Sectors with Precision $e^+e^- \to Zh$ and Higgs Diphoton Studies

Thursday, 28 October 2021 10:40 (20 minutes)

We compute the one-loop corrections to $\sigma(e^+e^- \to Zh)$ arising from representative extended Standard Model scalar sector scenarios. According to the new scalar SU(2)L representations, we consider the inert doublet, real and complex triplet, quintuplet, and septuplet models. With the sub-percent level precision expected for prospective future $e+e-$ collider measurements of $\sigma(e^+e^- \to Zh)$, studies of the Higgsstrahlung process will probe extended scalar sector particle spectrum and interactions in a manner complementary to direct searches at the Large Hadron Collider and possible future pp colliders. We also compare with the sensitivity of future Higgs diphoton decay rate measurements. We find that the $\sigma(e^+e^- \to Zh)$ and $\Gamma(h \to \gamma\gamma)$ complementarity is particularly pronounced for the complex triplet model.

1st preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

2nd preferred time slot for your oral presentation

13:00-15:00 JST (6:00-8:00 CEST, 0:00-2:00 EDT, 21:00-23:00 PDT)

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Session Classification: F-1: Higgs properties

Track Classification: Parallel sessions: Topical Groups: Session F: Higgs properties