Contribution ID: **75** Type: **not specified**

Higgs-like Resonances in a 3-3-1 Model

Thursday 4 December 2025 17:00 (20 minutes)

Recent experimental results have reported mild deviations from Standard Model predictions in processes involving two photons in the final state, suggesting the possible presence of high-mass scalar resonances at the few-hundred-GeV scale. We investigate these anomalies within the framework of 3-3-1 models, a well-motivated class of extensions of the Standard Model. Focusing on the most relevant regions of parameter space, we determine the preferred scalar mass ranges and present the results in terms of probability density functions. We implement the 3-3-1 model with right-handed neutrinos, which can be considered as a benchmark within this class of models, in the SARAH package. The scalar sector is constructed from the most general potential involving three Higgs triplets and one scalar sextet, consistent with the required symmetries for a realistic model.

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Session Classification: Theory and BSM