

PAUL SCHERRER INSTITUT



# Particle Theory Seminar

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“Vector-like fermions in Composite Higgs Models”

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**Abstract:**

In Composite Higgs Models the Higgs boson emerges as a pseudo Goldstone boson from a new strongly-interacting sector. The Higgs potential is generated by loops of SM fermions and gauge bosons. A light Higgs boson mass then implies that new vector-like fermionic resonances of the strong sector cannot be too heavy. Mixing effects between SM fermions and the new fermionic states, which can be sizable in case of third generation quarks, imply deviations from the related SM couplings. In this talk, effects of top and bottom partners on Higgs physics will be discussed taking into account the constraints on the parameter space from electroweak precision tests and direct searches for new vector-like fermions.