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## Light top partners for a light composite Higgs

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### **Abstract:**

Anomalously light partners of the top quark often appear in explicit constructions where the Higgs is a composite pseudo-Goldstone state. We show that in a broad class of models there is a strong correlation among the mass of the partners and the one of the Higgs boson. The presence of light partners could then be essential to fulfill the stringent LHC upper bound on the Higgs mass of around 130 GeV. This is what we find explicitly in the simplest calculable framework with a composite Higgs, the Discrete Composite Higgs Model, where the requirement of a realistic Higgs mass strongly constraints the fermionic spectrum and makes the light partners appear. The light top partners provide the most promising manifestation of the composite Higgs scenario at the LHC. We analyze the 7-TeV LHC searches presently available and find that they already give some non-trivial constraint.

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