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Fundamental Composite 2HDM : SU(6)->Sp(6)

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The Standard Model suffers from many theoretical problems. What is the physical origin of the Electroweak symmetry breaking ? Why is the Higgs boson the only fundamental scalar in the Standard Model? As a consequence, why is there such a fine tuning in the Higgs sector ? And finally, where is Dark Matter ? Composite Higgs models can give answers to these questions in an appealing way. In these models, the Higgs is regarded as a pseudo Godstone boson, result of the dynamical breaking of a global flavor symmetry from a more fundamental theory. This breaking generates also other particles that can be good Dark Matter candidates. In this talk, I will present the main ideas of Composite Higgs models and the results of my work using SU(6)/Sp(6) as a specific example. This model contains 14 Godstone bosons where 8 of them form 2 Higgs doublets, the others could possibly be Dark Matter candidates. I will also present a detailed study of the Yukawa sector and the potential for the Higgs giving it its mass.

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