

Dynamical electroweak symmetry breaking by quasiconformal technicolour theories

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In technicolour theories the electroweak symmetry is broken by chiral symmetry breaking in an additional strongly interacting sector added to the standard model without elementary Higgs sector.

Quasiconformal technicolour models with matter in higher representations of the technicolour gauge group are viable candidates for breaking the electroweak symmetry dynamically. They are not at odds with available electroweak precision data.

Here, we start with a brief introduction into dynamical electroweak symmetry breaking by technicolour theories. Subsequently, we discuss the phase diagram of strongly interacting theories in the N_c - N_f -plane and how to relate it to the task of finding candidates for quasiconformal technicolour models. Continuing from there, we select the prime candidates by using constraints from available electroweak precision data like, for example, bounds on flavour changing neutral currents, oblique parameters and the detectability of Nambu-Goldstone modes. The latter issue is also linked to the stability of the vacuum. We discuss the features of selected candidates in greater detail.

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