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Derivation of the Bosonic Part of the Electroweak Chiral Lagrangian from a General Underlying Technicolor Theory

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Abstract: Bosonic part of $SU(2)_L\otimes U(1)_Y$ effective chiral Lagrangian for electroweak symmetry breaking is derived from an underlying technicolor theory with no approximation. The underlying theory is assumed to be the most general gauge theory without fundamental scalars. A condensate is required to exist in the theory which breaks $SU(2)_L\otimes U(1)_Y$ dynamically to $U(1)_{em}$ and the anomaly of the theory caused by gauge interaction must be cancelled. The formulation offers general definitions in terms of underlying theory for the low energy constants in effective chiral Lagrangian.

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