Charge Quantisation in the Standard Model due to Gauge Anomaly Cancellations

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Abstract

An amazing property of the known elementary particles is that the electric and weak charges appear in discrete units. Dirac gave an explanations for this, but it requires the existence of at least one magnetic monopole. Here we address the question, if this property can also be derived from the requirement of gauge invariance on the quantum level, i.e. the cancellations of gauge anomalies. This issue is discussed in the Standard Model, and some of its variants.

Title

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