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Anomaly cancellation and conformality in quiver gauge theories. (English) Zbl 1248.81210
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Summary: Abelian quiver gauge theories provide non-supersymmetric candidates for the conformality approach to physics beyond the standard model. Written as $\mathcal{N} = 0$, $U(N)^n$ gauge theories, however, they have mixed $U(1)_p U(1)_q^2$ and $U(1)_p SU(N)_q^2$ triangle anomalies. It is shown how to construct explicitly a compensatory term $\Delta\mathcal{L}_{\text{comp}}$ which restores gauge invariance of $\mathcal{L}_{\text{eff}} = \mathcal{L} + \Delta\mathcal{L}_{\text{comp}}$ under $U(N)^n$. It can lead to a negative contribution to the $U(1)$ β -function and hence to one-loop conformality at high energy for all dimensionless couplings.

MSC:

- [81T50](#) Anomalies in quantum field theory
- [81T13](#) Yang-Mills and other gauge theories in quantum field theory
- [81T17](#) Renormalization group methods applied to problems in quantum field theory

Cited in 1 Document

Keywords:

[quiver gauge theories](#)

Full Text: [DOI](#) [arXiv](#)

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