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A Gaussian Normalization as an Alternative to Renormalization
JULIE TALBOT, University of West Georgia — Although renormalization is the standard method for solving all renormalization problems, it is not accepted by all physicists, and even Feynman referred to it as "sweeping the infinities under the rug." As an alternative to renormalization, instead of using cut-off masses and renormalized charges, this calculation attempts to solve for the vertex correction term by modifying the usual Yang-Lee vector boson propagator by a normalization term of Gaussian form. Unlike renormalization, this technique is non-perturbative, and corresponds to a non-localized point of interaction. While this normalization term is not unique, it does show that it is possible to calculate the vertex correction without relying upon regularization or renormalization.

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