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Cutting equation is strong-field QED

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The cutting technique for Feynman diagrams is a powerful tool for extracting implications of unitarity. It is widely used and referred to in various areas of quantum field theory, including strong-field QED. However, to the best of our knowledge, no proof of the cutting technique in the presence of a classical background field has been published. In our presentation, we follow M. Veltman's original proof for self-acting scalar field theory and extend it to strong-field QED with a stable vacuum. We also demonstrate the cutting equation on the example of the second-order trident pair creation process and discuss prospects of it's future applications to non-perturbative strong-field QED.

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