

Mathematical Physics Seminar at Boston University

Thu, Oct 19, 3:00pm

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On the Cutkosky rules for Feynman graphs

MCS 135

Perturbative unitarity of the scattering matrix requires relations between the imaginary part of amplitudes and lower-order amplitudes to hold. This is often called the "optical theorem". These relations hold even on the level of individual Feynman graphs, as a consequence of the Cutkosky rules. We rederive these rules using the coordinate space technique of 't Hooft and Veltman. We study one-loop scalar examples. Finally we discuss perturbative unitarity of nonabelian gauge theories and how the Cutkosky rules and dispersive techniques may contribute to the calculation of QCD graphs.

<http://math.bu.edu/research/mathphys/seminar.html>