Double Distributions, Wide-Angle Compton Scattering, and
$\gamma\gamma \to \pi\pi$ ANATOLY RADYUSHKIN, ALES PSAKER, Old Dominion University
and Jefferson Lab — Double Distributions (DD) are the basis of a novel approach
to describe hadronic structure. They represent a form of Generalized Parton Distributions, which attracted recently a considerable attention both from theoretical
and experimental side. We develop a DD-based approach to wide-angle Compton
scattering and annihilation processes like $\gamma\gamma \to \pi^+\pi^-$ in kinematics when all Mandelstam variables s, t, u are large. We take into account both twist-2 and twist-3
effects, and also show that t-dependence of the short-distance propagator can be
treated as a generalized target mass correction, in a treatment analogous to that
developed by Nachtmann and Georgi and Politzer for deep inelastic scattering. We
study the dependence of the amplitude on polarization of participating photons and
give estimates for cross sections. To this end we propose models for double distributions in spacelike and timelike regions.

Anatoly Radyushkin
Old Dominion University and Jefferson Lab