Poincaré Invariant Three-body Scattering T. LIN, CH. ELSTER,
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The Poincaré invariant Faddeev equation for three-body scattering is directly for-
mulated in momentum space without employing a partial wave decomposition. The
scattering amplitude is obtained as functions of vector momenta by solving the Fad-
deev equation in three dimensions through Padé iteration. Based on a Malfliet-Tjon
type potential, differential cross sections for elastic and break-up scattering (inclu-
sive and exclusive) are calculated at selected energies up to the GeV scale. The
reaction mechanisms at higher energies associated with different kinematic config-
urations such as quasi-free (QFS) and final state interaction (FSI) are investigated
and compared to the corresponding non-relativistic cross sections. Especially, mul-
tiple rescattering contributions beyond the leading order of the two-body t matrix
are analyzed as function of energy and kinematic configuration.

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