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Three-dimensional fragmentation function studies in e^+e^- annihilation at high energies

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After a brief description of the three-dimensional fragmentation functions defined via quark-quark correlator for hadrons with different spins (0, 1/2 and 1) at leading and higher twists, we discuss how to study them in hadron production processes in e^+e^- annihilation. We first present the general framework to express the cross section in terms of the corresponding structure functions then give the parton model results for the differential cross sections and/or different spin asymmetries up to twist 3 in terms of gauge invariant fragmentations. The results can serve as a basis for experimental and phenomenological studies in this reaction.

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