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Recursive Monte-Carlo code for polarized quark jet

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A Monte-Carlo code of jet generation by a transversely polarized quark is proposed. It is based on the recursive splitting of a string, like in the symmetric Lund fragmentation model, together with the 3P0 model of quark-antiquark pair creation. The code involves a complex mass parameter, in addition to the usual Lund parameters. The Collins effect is obtained and the related asymmetries, their dependence on the quark flavor, on the hadron species and on energy are studied. Azimuthal correlations and di-hadron asymmetries are also investigated. The results can help improving quark polarimetry.

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