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Covariant multipole expansion of local currents for massive states of any spin

Wednesday 16 December 2020 16:00 (30 minutes)

We study the structure of scalar, vector, and tensor currents for on-shell massive particles of any spin. When considering higher values for the spin of the particle, the number of form factors (FFs) involved in the decomposition of the matrix elements associated with these local currents increases. We identify all the fundamental structures that give rise to the independent FFs, systematically for any spin value. These structures can be conveniently organised using an expansion in covariant multipoles, built solely from the Lorentz generators. This approach allows one to uniquely identify the terms which are universal and those that arise because of spin. We derive counting rules which relate the number of FFs to the total spin j of the state, showing explicitly that these rules match all the well-known cases up to spin 2.

Would you be interested in receiving feedback on your talk?

Yes

Will you be pre-recording your talk?

No

Length of talk

15-25 minutes

Are you happy for your talk to be recorded?

Yes

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