

| Variable                     | Definition   |
|------------------------------|--|
| <b>charged PF candidates</b> |  |
| $\log p_T$                   | logarithm of the particle $p_T$  |
| $\log E$                     | logarithm of the particle energy   |
| $\Delta\eta(\text{jet})$     | difference in pseudorapidity between the particle and the jet axis                           |
| $\Delta\phi(\text{jet})$     | difference in azimuthal angle between the particle and the jet axis                          |
| $ \eta $                     | absolute value of the particle pseudorapidity  |
| $q$                          | electric charge of the particle  |
| isMuon                       | true if the particle is identified as a muon   |
| isElectron                   | true if the particle is identified as an electron  |
| isChargedHadron              | true if the particle is identified as a charged hadron                                       |
| pvAssociationQuality         | flag related to the association of the track to the primary vertices                         |
| lostInnerHits                | quality flag of the track related to missing hits on the pixel layers                        |
| $\chi^2/dof$                 | $\chi^2$ value of the trajectory fit normalized to the number of degrees of freedom          |
| qualityMask                  | quality flag of the track  |
| $d_z$                        | longitudinal impact parameter of the track   |
| $d_z/\sigma_{d_z}$           | significance of the longitudinal impact parameter  |
| $d_{xy}$                     | transverse impact parameter of the track   |
| $d_{xy}/\sigma_{d_{xy}}$     | significance of the transverse impact parameter  |
| $\eta_{\text{rel}}$          | pseudorapidity of the track relative to the jet axis   |
| $p_{T,\text{rel}}$ ratio     | track momentum perpendicular to the jet axis, divided by the magnitude of the track momentum |
| $p_{\text{par,rel}}$ ratio   | track momentum parallel to the jet axis divided by the magnitude of the track momentum       |
| $d_{3D}$                     | signed 3D impact parameter of the track  |
| $d_{3D}/\sigma_{3D}$         | signed 3D impact parameter significance of the track   |
| trackDistance                | distance between the track and the jet axis at their point of closest approach               |

### Neutral PF candidates

|                          |   |
|--------------------------|---|
| $\log p_T$               | logarithm of the particle's $p_T$                                   |
| $\log E$                 | logarithm of the particle's energy                                  |
| $\Delta\eta(\text{jet})$ | difference in pseudorapidity between the particle and the jet axis  |
| $\Delta\phi(\text{jet})$ | difference in azimuthal angle between the particle and the jet axis |
| $ \eta $                 | absolute value of the particle pseudorapidity                       |
| isPhoton                 | true if the particle is identified as a photon                      |
| isNeutralHadron          | true if the particle is identified as a neutral hadron              |

### For SVs within the jet cone

|                          |   |
|--------------------------|---|
| $\log p_T$               | logarithm of the SV $p_T$   |
| $m_{\text{SV}}$          | invariant mass of the tracks associated with the SV                         |
| $\Delta\eta(\text{jet})$ | difference in pseudorapidity between the SV and the jet axis                |
| $\Delta\phi(\text{jet})$ | difference in azimuthal angle between the SV and the jet axis               |
| $ \eta $                 | absolute value of the SV pseudorapidity                                     |
| $N_{\text{tracks}}$      | number of tracks associated with the SV                                     |
| $\chi^2/dof$             | $\chi^2$ value of the SV fit normalized to the number of degrees of freedom |
| $d_{2D}$                 | signed 2D impact parameter (i.e., in the transverse plane) of the SV        |
| $d_{2D}/\sigma_{2D}$     | signed 2D impact parameter significance of the SV                           |
| $d_{3D}$                 | signed 3D impact parameter of the SV  |
| $d_{3D}/\sigma_{3D}$     | signed 3D impact parameter significance of the SV                           |