
Requirements for the $H \rightarrow 4\ell$ fiducial phase space

Lepton kinematics and isolation

Leading lepton p_T	$p_T > 20 \text{ GeV}$
Sub-leading lepton p_T	$p_T > 10 \text{ GeV}$
Additional electrons (muons) p_T	$p_T > 7 \text{ (5) GeV}$
Pseudorapidity of electrons (muons)	$ \eta < 2.5 \text{ (2.4)}$
Sum of scalar p_T of all stable particles within $\Delta R < 0.4$ from lepton	$< 0.4 p_T$

Event topology

Existence of at least two SFOS lepton pairs, where leptons satisfy criteria above	
Inv. mass of the Z_1 candidate	$40 < m(Z_1) < 120 \text{ GeV}$
Inv. mass of the Z_2 candidate	$12 < m(Z_2) < 120 \text{ GeV}$
Distance between selected four leptons	$\Delta R(\ell_i \ell_j) > 0.02$
Inv. mass of any opposite-sign lepton pair	$m(\ell_i^+ \ell_j^-) > 4 \text{ GeV}$
Inv. mass of the selected four leptons	$105 < m_{4\ell} < 140 \text{ GeV}$
