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$$W^2 = (q + P_P)^2 = -Q^2 + 2M_N V + M_W^2 \quad Q^2 > 0$$

$V = (E_e - E_{e'})$ in the lab. frame

$$V = \frac{W^2 + Q^2 - M_W^2}{2M_N}$$

Photon point $Q^2 = 0$

The W range for the physics interest $1.5 \text{ GeV} < W < 2.5 \text{ GeV}$

$W_{\min}$ $E_e = 7.5 \text{ GeV}$

$W_{\min}$	V	$E_{e'}$
1.5 GeV	0.73 GeV	6.78 GeV

$W_{\max}$	V	$E_{e'}$
2.5 GeV	2.86 GeV	4.64 GeV

$$\underline{E_e = 6.4 \text{ GeV}}$$

W_{min}	ν	E_{e1}
1.5 GeV	0.73 GeV	5.67 GeV

W_{max}	ν	E_{e1}
2.5 GeV	2.86 GeV	3.54 GeV