

$\sigma_{tZq} \times 5 = 102^{+5}_{-2}(\text{tot.}) \text{ fb} \times 5$
MadGraph5_aMC@NLO
NLO QCD

$\sigma_{tZq} \times 5 = 94^{+3}_{-3}(\text{tot.}) \text{ fb} \times 5$
MadGraph5_aMC@NLO
NLO QCD

$\sigma_{tq\gamma} = 515^{+36}_{-42}(\text{tot.}) \text{ fb}$
MadGraph5_aMC@NLO
NLO QCD

$\sigma_{tq\gamma} \times 5 = 81 \pm 4(\text{tot.}) \text{ fb} \times 5$
MadGraph5_aMC@NLO
NLO QCD

$\sigma_{tWZ} \times 2 = 136^{+9}_{-8}(\text{tot.}) \text{ fb} \times 2$
MadGraph5_aMC@NLO
NLO QCD

$\sigma_{\text{meas.}} \pm (\text{stat.}) \pm (\text{syst.})$



tZq

$97 \pm 13 \pm 7 \text{ fb} \times 5$



$88^{+8}_{-7}{}^{+7}_{-6} \text{ fb} \times 5$



tq γ

$688 \pm 23^{+75}_{-71} \text{ fb}$



$115 \pm 17 \pm 30 \text{ fb} \times 5$



tWZ

$354 \pm 54 \pm 95 \text{ fb} \times 2$



ATLAS, $L_{\text{int}} = 139 \text{ fb}^{-1}$
JHEP 07 (2020) 124

CMS, $L_{\text{int}} = 138 \text{ fb}^{-1}$
JHEP 02 (2022) 107

ATLAS, $L_{\text{int}} = 139 \text{ fb}^{-1}$, Vis 1
PRL 131 (2023) 181901

CMS, $L_{\text{int}} = 36 \text{ fb}^{-1}$, Vis 2
PRL 121 (2018) 221801

CMS, $L_{\text{int}} = 138 \text{ fb}^{-1}$
arXiv:2312.11668

$\sigma_{tX} [\text{fb}]$