

Erratum: Search for diboson resonances in hadronic final states in 139 fb^{-1} of pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector



The ATLAS collaboration

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ERRATUM TO: [JHEP09\(2019\)091](#)

ARXIV EPRINT: [1906.08589](#)

A mistake was identified for the paper [1] in the treatment of the radion [2] cross-sections, which resulted in multiple changes:

1. section 4.1 was updated to list the correct cross-sections for the production of a 2 TeV or 3 TeV radion decaying to WW , which are 6.3 fb and 0.61 fb respectively (3.1 fb and 0.30 fb for radion decays to ZZ);
2. the predicted cross-section times branching ratio for radion models was incorrectly stated, and is now correctly listed in table 1 (correcting table 2 from the paper [1]);
3. previously the radion could not be excluded in any mass range due to this mistaken cross-section, while now radion masses are excluded for different mass ranges as fixed in table 2 (correcting table 3 from the paper [1]).

Given these fixes, the results now exclude the production of $WW + ZZ$ from the scalar-like radion at the 95% CL in the range 1.3 TeV–3.0 TeV.

Mass [TeV]	Observed Limit [fb]	Expected Limit [fb]	Prediction [fb]
2.0	5.72	5.75	9.4
3.0	1.86	2.85	0.92
4.0	1.98	2.34	0.089
5.0	1.98	2.02	0.012

Table 1. Observed and expected limits at 95% CL on cross-section times branching ratio for $WW + ZZ$ production for different radion masses m_{radion} , as well as the predicted cross-section times branching ratio.

Model	Signal Region	Excluded mass range [TeV]
Radion	WW	1.3–2.8
	ZZ	1.6–2.1
	$WW + ZZ$	1.3–3.0
HVT model A, $g_V = 1$	WW	1.3–2.9
	WZ	1.3–3.4
	$WW + WZ$	1.3–3.5
HVT model B, $g_V = 3$	WW	1.3–3.1
	WZ	1.3–3.6
	$WW + WZ$	1.3–3.8
Bulk RS, $k/\overline{M}_{\text{Pl}} = 1$	WW	1.3–1.6
	ZZ	none
	$WW + ZZ$	1.3–1.8

Table 2. Observed excluded resonance masses (at 95% CL) in the individual and combined signal regions for the HVT, bulk RS and radion models.

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References

- [1] ATLAS collaboration, *Search for diboson resonances in hadronic final states in 139 fb⁻¹ of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, *JHEP* **09** (2019) 091 [[arXiv:1906.08589](https://arxiv.org/abs/1906.08589)] [[INSPIRE](#)].
- [2] A. Oliveira, *Gravity particles from Warped Extra Dimensions, predictions for LHC*, [arXiv:1404.0102](https://arxiv.org/abs/1404.0102) [[INSPIRE](#)].

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