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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: 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



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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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- [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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