

## BUILDING A HIGH RESOLUTION LINE LIST FOR ALUMINIUM MONOXIDE

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Indications of aluminium monoxide (AlO) in the atmospheres of exoplanets are being reported and it is predicted to be an important source of opacity in hot Jupiters. Studies using high resolution spectroscopy should allow for a strong detection but require high accuracy reference data observed in a laboratory setting. A MARVEL (measured active rotational-vibrational energy levels) analysis is performed on the available, measured spectroscopic data for  $^{27}\text{Al}^{16}\text{O}$ : 22 679 validated transitions are used to determine 6 512 distinct energy levels. These empirical energy levels are used to provide an improved, spectroscopically accurate version of the ExoMol ATP line list for  $^{27}\text{Al}^{16}\text{O}$ ; at the same time the accuracy of the line lists for the isotopically-substituted species  $^{26}\text{Al}^{16}\text{O}$ ,  $^{27}\text{Al}^{17}\text{O}$  and  $^{27}\text{Al}^{18}\text{O}$  are improved by correcting levels in line with the corrections used for  $^{27}\text{Al}^{16}\text{O}$ . The four, newly updated line lists include full uncertainties and are made available via [www.exomol.com](http://www.exomol.com) as part of the ExoMol project.