

147 GHz Waves from Active Galactic Nuclei Coinciding Water Alignment Energy

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Abstract: 147 GHz waves coming from three prominent AGN (NRAO150, 3C279, 1633+382) coincide with the frequency equivalence of the difference between first two water alignment energies.

Keywords: Water alignment energies, 147 GHz waves

1. INTRODUCTION

Krichbaum et al [1] at 147 GHz (2mm wavelength) detected three prominent AGN (NRAO150, 3C279, 1633+382) with Very Long Baseline Interferometry (VLBI) with an angular resolution of only 18 micro-arcseconds on the baseline between two antennas in Arizona (10m HHT and 12m KittPeak) and the IRAM 30m antenna on Pico Veleta in Spain. This is a new world record in radio interferometry and astronomical imaging and opens fascinating future possibilities to directly image and study the innermost regions in Quasars and other Active Galactic Nuclei. Interestingly, the measured frequency equals the frequency equivalence of the difference between water molecule and its dimer alignment energy [2].



Figure1. Quasar [3]

2. THE DIFFERENCE BETWEEN WATER MOLECULE AND WATER DIMER ALIGNMENT ENERGY

The alignment characteristics of water molecule and its dimer are taken from the reference [2] and presented in Table1. The difference of both alignment energies in eV and the frequency equivalence in GHz are added.

Table1. The alignment characteristics of water molecule H_2O and water dimer $(H_2O)_2$ [2]

Water	Mass (Da)	Unaligned R	Aligned R	Alignment energy (eV)	Energy difference (eV)	Frequency equivalence (GHz)
H_2O	18,010565	55704,309433	55704,000089	2,837763052		
$(H_2O)_2$	36,021130	111408,618866	111408,000044	2,838372562	0,00060951	147

From Table1 we can write the difference between water molecule and its dimer alignment energy as follows:

$$W_{alignment}^{(H_2O)_2} - W_{alignment}^{H_2O} = 2,838372562 \text{ eV} - 2,837763052 \text{ eV} = 0,00060951 \text{ eV.} \quad (1)$$

The corresponding frequency yields 147 GHz. The presence of water in AGN could play a role of receiver and emitter of such waves.

3. CONCLUSION

Coincidence can be devilishly misleading, but because we know it, coincidence is also God's providence.

DEDICATION

To God's providence



Figure2. *God's providence* [4]

REFERENCES

- [1] Krichbaum TP, Graham DA, Alef W, Polatidis A, Bach U, Witzel A, Zensus J A, Greve A, Grewing M, Doeleman S, Phillips R, Rogers AEE, Titus M, Fagg H, Strittmatter P, Wilson TL, Ziurys L, Freund R, Kononen P, Peltonen J, Urpo S, Rantakyro F, Conway J, and Booth RS. VLBI observations at 147 GHz: first detection of transatlantic fringes in bright AGN. Proceedings of the 6th European VLBI Network Symposium. Ros E, Porcas RW, & Zensus JA. (eds.). June 25th-28th 2002, Bonn, Germany. European Network. arXiv:astro-ph/0207022v1 1 Jul 2002
- [2] Janez Špringer (2021). Water Alignment Energy and Liquid-Liquid Critical Point. *International Journal of Advanced Research in Physical Science (IJARPS)* 8(8), pp.13-16, 2021.
- [3] An artist's illustration of the most distant single source of radio emissions in the universe, a quasar known as P172+18. (Image credit: ESO/M. Kornmesser)
- [4] <http://www.christianmessenger.in/gods-providence/>

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