



Royal  
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### **Professor Jonathan Tennyson – Gold Medal (G)**

Professor Jonathan Tennyson is recognised for a lifetime of groundbreaking research of molecular physics and pioneering leadership of the ExoMol project. His work is fundamental in our understanding of the chemistry and dynamics of exoplanetary and solar system atmospheres.

Professor Tennyson's work developed unique computational techniques for generating molecular line frequencies and transitions strength frequencies for small molecules. Through the highly successful ExoMol project, Professor Tennyson determined theoretical calculations of the molecular opacities of exoplanet atmospheres and provided robust molecular linelists that are essential in modelling the atmospheres. These linelists are essential in the measurements and interpretations of measured spectrums, and as a result, the ExoMol project is widely considered a standard tool across the community.

A notable achievement includes calculations of water transitions. His theoretical work on water molecules led to the first detection of water in sunspots and proved that water could survive in stars as hot as our Sun. Tennyson also pioneered understanding of the  $H_3^+$  molecule, where his calculations have been used to identify this molecule in a wide array of key environments including the auroral atmosphere of Jupiter, at Neptune, and in the Galactic Centre.

As well as these outstanding scientific advances, Professor Tennyson has authored a best-selling undergraduate textbook and a range of popular science articles. He is on several editorial boards for scientific journals, including being the Editor-in-Chief of the RAS Journal of Techniques and Instruments. And he is a Fellow of the Royal Society.