DETECTION OF INTERSTELLAR H_3^+

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After more than 15 years of searching,[a,b] H_3^+ has finally been detected in interstellar space.[c] Three vibration-rotation transitions in the 3.7 μm region, R(1,0) of ortho-H_3^+, and R(1,1)$^+$ and R(1,1)$^-$ of para-H_3^+ have been observed in absorption using the CGS4 infrared spectrometer at the United Kingdom Infrared Telescope towards young stellar objects GL2136 and W33A which are deeply embedded in dense molecular clouds. The observation provides the most direct evidence supporting the ion-neutral reaction scheme of interstellar chemistry proposed initally by Herbst and Klemperer and by Watson.

[a] T. Oka, *Phil. Trans. R. Soc. Lond.* A303, 543 (1981)
[b] T.R. Geballe and T. Oka, *Astrophys. J.* 342, 855 (1989)
[c] T.R. Geballe and T. Oka, *Nature* 384, 334 (1996)