Measurement of rotational temperature of AlO molecule from Fourier transform spectrum of the 0–0 band of $B^2\Sigma^+–X^2\Sigma^+$ band system

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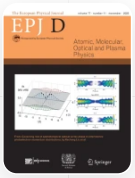

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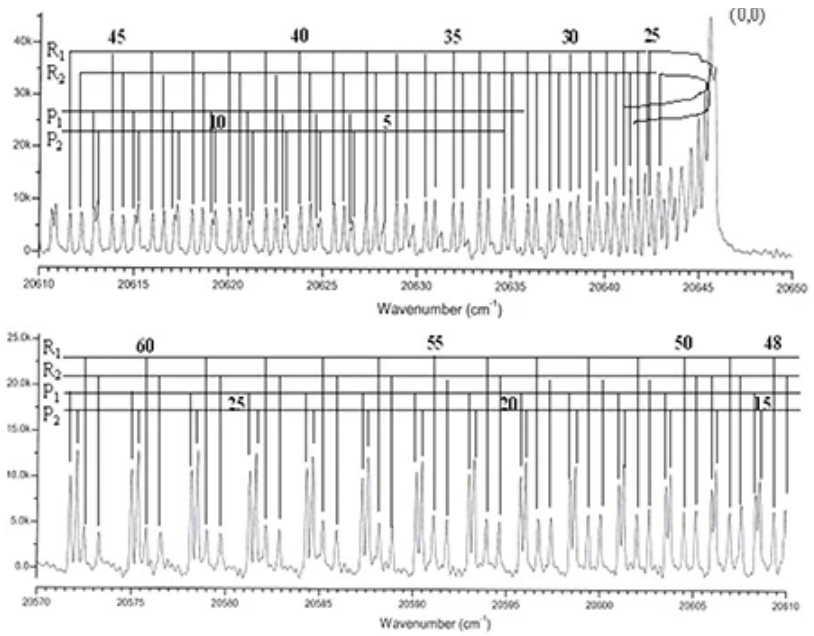
Abstract

The astrophysical importance of AlO molecule and its astronomical significance is well known. The existence of AlO molecule in the atmospheres of M type of stars is reported. The identification of B–X system in spectrum of some normal Mira giants and Mira variables is reported in literature. In the present work, the high resolution spectrum of the $B^2\Sigma^+–X^2\Sigma^+$ system of AlO was recorded on a Fourier Transform Spectrometer. By measuring the intensities of the well-resolved rotational lines of R_1 and R_2 branches of the (0–0) band measured the rotational temperature is calculated which is 1967 ± 75 K.

Graphical abstract



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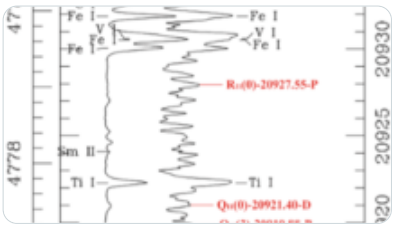

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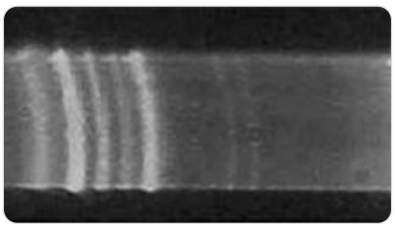

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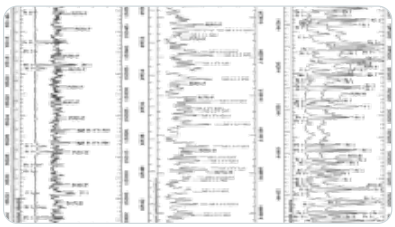

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