FOURIER TRANSFORM SPECTROSCOPY OF BaO: ANALYSIS OF $A\,^1\Sigma^+ - X^1\Sigma^+$ CHEMILUMINESCENCE

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The $A\,^1\Sigma^+ - X^1\Sigma^+$ emission spectrum of BaO from a Broida-type oven was revisited using a Fourier transform spectrometer. A total of 82
vibrational bands of ^{138}BaO were measured in the range of 8,900 to 21,000 cm^{-1}at a resolution of 0.004 cm^{-1}. The vibrational quantum number of the Ground state was observed up to $v'' = 20$ and up to $v' = 11$ for the excited A state. In addition, 72 bands from ^{137}BaO, ^{136}Bao and
^{135}BaO isotopomers were also measured. Over 15,000 rotational lines
were analyzed at a precision of about 0.005 cm^{-1}. Significantly improved spectral constants for the ground state are obtained.