INFRARED EMISSION SPECTRA OF HOT BeF_2 AND MgF_2

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High resolution infrared emission spectra of hot BeF_2 in the 800–2500 cm^{-1} region have been rotationally analyzed. The ν_3 fundamental band, $\nu_1 + \nu_2$, $\nu_1 + \nu_3$ and $2\nu_2 + \nu_3$ combination bands, and more than 15 hot bands were assigned. The ν_1 (σ_g), ν_2 (π_u) and ν_3 (σ_u) frequencies were directly obtained by fitting several hot bands and combination bands together. A complete analysis of all the bands is in progress and will be presented. High level ab initio calculations have been performed for the MgF_2 molecule to predict its vibration-rotation spectrum. An infrared emission spectrum of MgF_2 was recorded and will be assigned with the aid of ab initio calculations.