

# **Molecular Spectroscopy Data of Some Diatomic Metal Halides**

**Vipin Bahadur Singh**

Department of Physics, Udai Pratap Autonomous College, Varanasi 221002, India

## **ABSTRACT:**

**An extensive study of the available information of molecular structure and spectroscopy of diatomic halides of IIIA group metals (B, Al, Ga, In, Tl) and Copper has been performed. The literature survey extends till early 2012 and the experimental and theoretical data on molecular constants of ground state as well as excited states of these molecules will be presented. A brief discussion on the dissociation energies, ionization potentials, and the nature of bonding in the ground state alongwith the spectroscopic properties of the excited states will be given. The energy level diagram and potential energy curve as well as Transition probabilities, Einstein coefficients (for few rotational-vibration transitions) for these molecules will be also presented. Mechanism of Laser Transition in atomic Indium and Gallium due to ultraviolet photo dissociation in the diatomic Indium and Gallium halides will be discussed.**