Abstract for ICAMDATA05, Meudon, France
October 15–19, 2006

Absorption spectra of gaseous indium monohalides: experiments and simulations

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Domain : Lamps and Lasers

We measured highly resolved absorption spectra of gaseous InCl, InBr and InI molecules in the wavelength region of the A $^3\Pi_0^+$ - X $^1\Sigma_0^+$ and B $^3\Pi_1$ - X $^1\Sigma_0^+$ band systems. The derived absorption cross-sections were analysed theoretically with the help of spectral simulation models at different levels of sophistication. As results we obtain radially dependent electronic transition moments D(R) for the A-X and B-X band systems of these three indium monohalides. The corresponding radiative lifetimes of the A and B states are in the range of 2 to 10 microseconds.