Band	$\lambda_{exp}{}^{1}$	λ_{calc}	$FCF_{exp}{}^{1}$	$FCF_{exp}{}^{2}$	FCF_{calc}
(2,0)	444.9	445.0	0.045 ± 0.003	0.054	0.044
(2,1)	458.9	458.8	0.124 ± 0.003	0.124	0.124
(2,2)	473.3	473.2	0.092 ± 0.009	0.065	0.094
(2,3)	488.2	488.3	0.006 ± 0.002	-	0.003
(2,4)	504.3	504.3	0.059 ± 0.012	0.022	0.052
(2,5)	521.0	521.0	0.095 ± 0.022	0.119	0.108
(2,6)	538.6	538.7	0.032 ± 0.006	-	-
(2,7)	557.2	557.3	0.007 ± 0.004	-	-
(2,8)	576.7	576.9	0.064 ± 0.006	-	-
(2,9)	597.0	597.6	0.069 ± 0.010	-	-
(2,10)	618.4	619.5	0.043 ± 0.011	-	-
(2,11)	641.8	642.7	0.011 ± 0.008	-	-
(2,12)	666.3	667.2	0.006 ± 0.004	-	-

Table 1. Experimental FCFs ($FCF_{exp}{}^{1}$ = this work, $FCF_{exp}{}^{2}$ = Spietz *et al.*[22]) and observed wavelengths ($\lambda_{exp}{}^{1}$ = this work) for the vibrational bands of the $A^2\Pi_{3/2}$ ($v' = 2$) → $X^2\Pi_{3/2}$ (v'') system of IO. The errors for the FCFs determined in this work are the 2σ standard deviation of the average fluorescence intensities of the vibrational bands. The estimated precision of the experimental wavelengths is ± 0.2 nm, as inferred from the reproducibility of the band positions in the dispersed fluorescence spectra. The calculated FCFs (FCF_{calc}) are taken from Rao *et al.*[21] and the calculated wavelengths (λ_{calc}) are obtained using the spectroscopic data of Newman *et al.*[18] and Miller *et al.*[19].

Band	λ_{exp}^{1}	λ_{calc}	FCF_{exp}^{1}	FCF_{exp}^{2}	FCF_{calc}
(0,0)	-	465.7	-	0.003	0.005
(0,1)	480.9	480.8	0.033 ± 0.018	0.023	0.035
(0,2)	496.5	496.6	0.097 ± 0.017	0.097	0.109
(0,3)	512.5	513.3	0.198 ± 0.052	0.198	0.198
(0,4)	530.6	530.9	0.158 ± 0.058	0.207	0.241
(0,5)	549.7	549.6	0.139 ± 0.023	0.177	0.204
(0,6)	568.7	569.2	0.097 ± 0.041	-	-

Table 2. FCFs (FCF_{exp}^{1}) and observed wavelengths (λ_{exp}^{1}) for vibrational transitions of the $A^2\Pi_{3/2}$ ($v' = 0$) → $X^2\Pi_{3/2}$ (v'') system of IO, as determined in this work. Note the errors for the FCFs are the 2σ standard deviation of the average fluorescence intensity of the vibrational bands. The estimated error of the experimental wavelengths is ± 0.2 nm, as inferred from the reproducibility of the band positions in the dispersed fluorescence spectra. FCFs (FCF_{exp}^{2}) determined by Spietz *et al.*[22] are also presented. The calculated FCFs (FCF_{calc}) are taken from Rao *et al.*[21] and the calculated wavelengths are obtained using spectroscopic data of Newman *et al.*[18] and Miller *et al.*[19].