Abstract Submitted
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Polarized Fluorescence from H_2 and D_2 Excited by Polarized Electron Impact[1] J.W. MASEBERG, T.J. GAY, University of Nebraska — We report relative Stokes parameters for the following rotationally isolated molecular Fulcher band transitions in H_2 and D_2 excited from singlet ground states by spin-polarized electrons:

$$\begin{aligned}
&H_2\ d\,^3\Pi_u^-(v'=0) \rightarrow a\,^3\Sigma_g^+(v''=0) + \gamma(601.83\text{ nm})\ Q(1)\\
&H_2\ d\,^3\Pi_u^-(v'=2) \rightarrow a\,^3\Sigma_g^+(v''=2) + \gamma(622.48\text{ nm})\ Q(1)\\
&H_2\ d\,^3\Pi_u^-(v'=2) \rightarrow a\,^3\Sigma_g^+(v''=2) + \gamma(623.84\text{ nm})\ Q(3)\\
&H_2\ d\,^3\Pi_u^+(v'=2) \rightarrow a\,^3\Sigma_g^+(v''=2) + \gamma(618.30\text{ nm})\ R(1)\\
&D_2\ d\,^3\Pi_u^-(v'=0) \rightarrow a\,^3\Sigma_g^+(v''=0) + \gamma(600.68\text{ nm})\ Q(3).
\end{aligned}$$

Values of the circular polarization fraction normalized to the incident electron spin polarization, P_3/P_e, for the above $Q(1)$ transitions are found to be $\sim$0.15, and smaller values are measured for the $Q(3)$ lines. For the $R(1)$ case, somewhat larger values of $\sim$0.20 are obtained.

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