## Photodissociation dynamics and alignment of CH2BrI in the third absorption band at 193 nm

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The photodissociation of dihalomethanes have received significant attention due to its role in producing pollutant species and ozone depletion.[1] Moreover, CH<sub>2</sub>BrI presents an intricate structure of excited electronic states and a high bond selectivity. For instance, the A absorption band was attributed to C-I dissociation, while the A' band corresponds to C-Br bond fission.[2] However, the third band (B band) has not been investigated deeply.[3]

The detection of atomic iodine  $I({}^{2}P_{3/2,1/2})$  and bromine  $Br({}^{2}P_{3/2,1/2})$ , using a combination of laser pump-andprobe and slicing imaging techniques coupled to (2+1) REMPI, show the presence of two main contributions. Combining the experimental results with high ab initio calculations, we assigned the faster contribution to a predissociation through the 9A' state. Meanwhile, the slower contribution was attributed to a secondary dissociation after absorbing a second 193 nm photon. Due to geometrical restrictions, this process was favored through the C-Br dissociation rather than the C-I bond cleavage. The calculated anisotropy parameter supports the proposed mechanism.

## References

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