PREDISSOCIATION OF RYDBERG STATES OF CO INVESTIGATED BY THE DETECTION OF C(^{3}P$_J$) FRAGMENT

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Carbon atom generation following the predissociation of Rydberg states of CO has been investigated [a]. The Rydberg states of CO were prepared by two-color double resonant excitation through the $3s\sigma B^1\Sigma^+$ state and the atomic carbon fragment was detected by resonance-enhanced multiphoton ionization. The $4s \sim 6s\,(v = 0)$, $5s\,(v = 1)$, $4p \sim 5p\,(v = 0)$, $3d\pi\,(v = 0, 1)$, $4d\sigma\,(v = 0)$, $5d\sigma\,(v = 0)$, $4f \sim 5f\,(v = 0)$ Rydberg states and the $W^1\Pi(v = 2, 3)$ state were found to generate ^3P carbon atom.
Mechanism of the predissociation of these high Rydberg states will be discussed based on the atomic carbon fragment yield measurement and on Doppler line shape measurement.

[a] T. Ebata, T. Sutani, and N. Mikami, Chem. Phys. Lett. 240, 357 (1995).