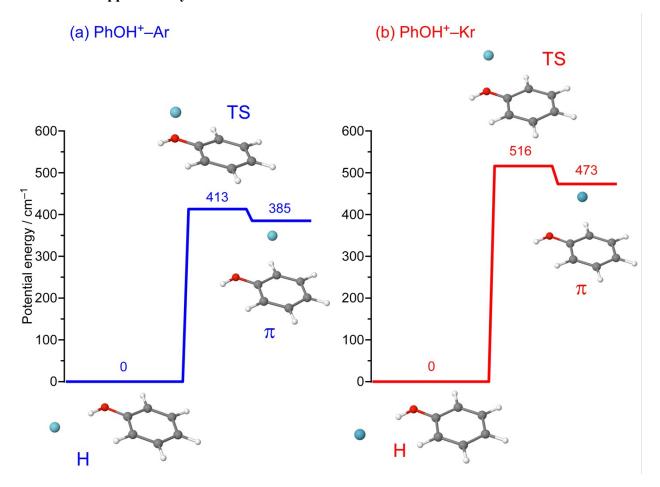
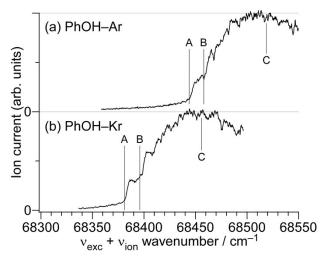
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## **Electronic Supplementary Information**



**Figure S1** Potential energy diagrams of (a) PhOH<sup>+</sup>–Ar and (b) PhOH<sup>+</sup>–Kr calculated at the B3LYP-D3/aug-cc-pVTZ level of theory. Energies are not corrected for zero-point energies and basis set super position errors.



**Figure S2** Photoionization efficiency curves of PhOH–Ar and PhOH–Kr clusters used for estimation of the amount of the direct ionization components measured by nanosecond lasers. Lines labeled A, B, and C show positions at which ionization efficiencies are evaluated; A: direct ionization to the H-bound isomer, B: vibrational ground level of the  $\pi$ -bound isomer, and C: the excess energy used in the time-resolved measurements, respectively.