INFRARED SPECTROSCOPY OF SIZE-SELECTED CARBOCATIONS I.: $C_3H_3^+$, $C_3H_5^+$, AND $C_4H_9^+$

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Cold, rare gas tagged, gas phase carbocations are produced in a pulsed electric discharge supersonic expansion cluster source. The infrared spectra of the size-selected species are obtained *via* infrared photodissociation spectroscopy. The structure and spectroscopy (700-4000 cm^{-1}) of the propargyl, cyclopropenyl, allyl, 2-propenyl, and t-butyl ions will be discussed. The infrared spectral signatures of the title ions are compared to the interstellar unidentified infrared emission bands.