Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting Information for

Gas-phase spectroscopy of singly reduced tris(bipyridine)ruthenium ions, $Ru(bipy)_3^+$

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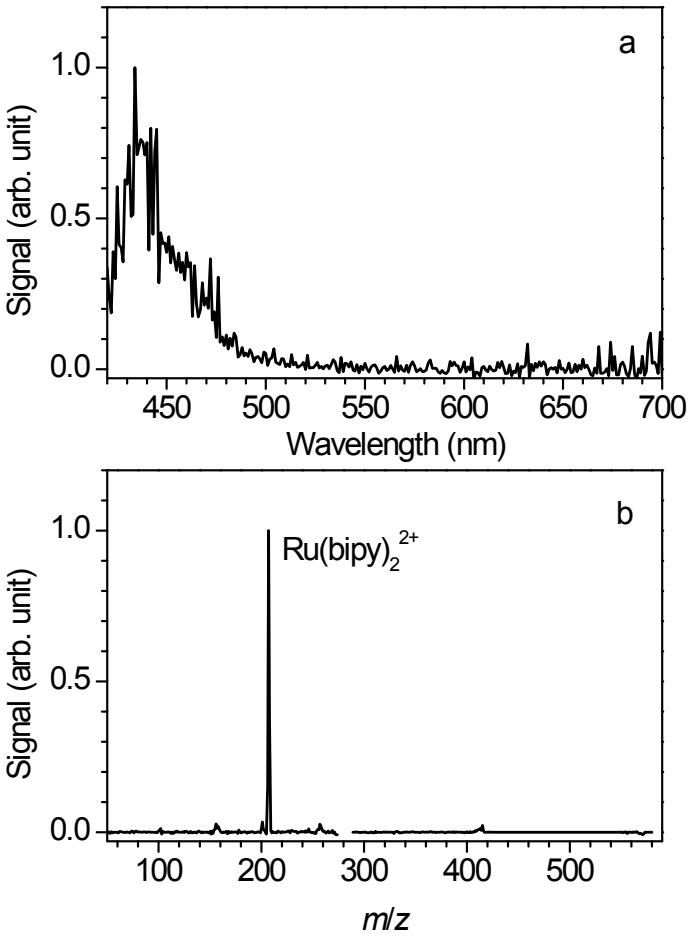
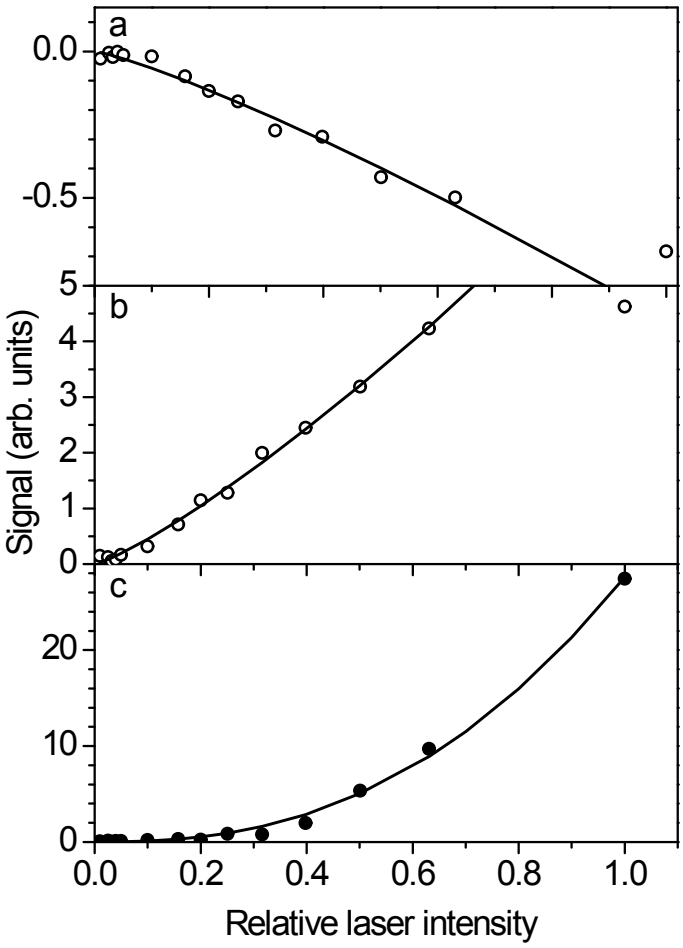
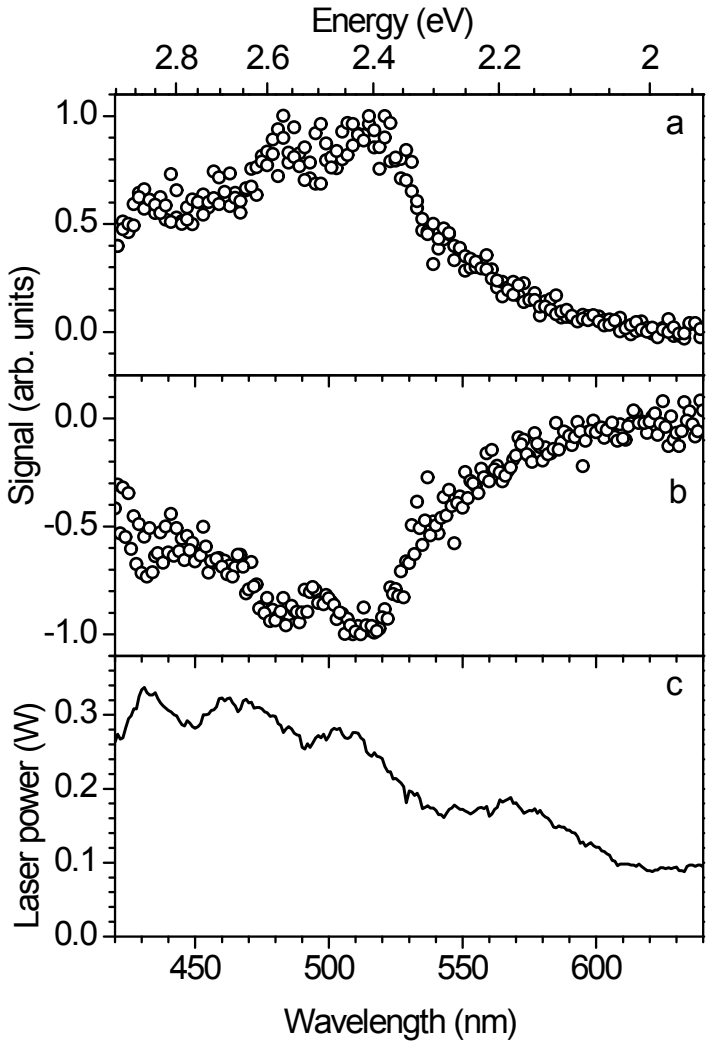


Photodissociation of $Ru(bipy)_3^{2+}$: Bottom panel is a photoinduced dissociation mass spectrum obtained at 430 nm. The region near to the parent ion (*m/z* 285) was not scanned because of saturation of the detector. Top panel is the action spectrum recorded by monitoring the yield of $Ru(bipy)_2^{2+}$ versus excitation wavelength.



Power-dependence results: (a) Depletion of $Ru(bipy)_3^+$ *versus* relative laser intensity (1 is max). λ = 520 nm. (b) The photo-yield of $Ru(bipy)_2^+$ *versus* laser intensity. λ = 520 nm. Curves $a\,x^{1.2}$ are fit to the data. At high laser powers there is saturation. (c) Production of $Ru(bipy)_2^{2+}$ from $Ru(bipy)_3^{2+}$. λ = 430 nm. The curve is a $a\,x^{2.5}$ fit.



"Laser on" minus "laser off" signals versus excitation wavelength. (a) $Ru(bipy)_2^+$. (b) $Ru(bipy)_3^+$. (c) The laser power versus wavelength.