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Observation of fractional charges in the mass spectroscopic experiments

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Abstract

In previous publications dealing with experimental mass spectrometry of tungsten hexacarbonyl, hexafluoroacetylacetone and its bidentate metal complexes $M(hfac)_2$; M = Cu, Pd the obtained data have not been adequately systematized. In this paper, we analyse the previously published experimental data of the various bond dissociation energy. A modified Yukawa potential is used to analyse the experimental data. Experimental results of the formation of ions can be interpreted only in terms of the formation of fractionally charged quasi-particles. As an experimental technique, mass spectrometry of negative ions in electron resonance capture mode ranks next to the fractional quantum Hall effect in which fractional values of the charge quantization are observed.