

## **Supporting Information For:**

### **The Absolute Standard Hydrogen Electrode Potential Measured by Reduction of Aqueous Nanodrops in the Gas Phase**

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Submitted: May 31, 2007

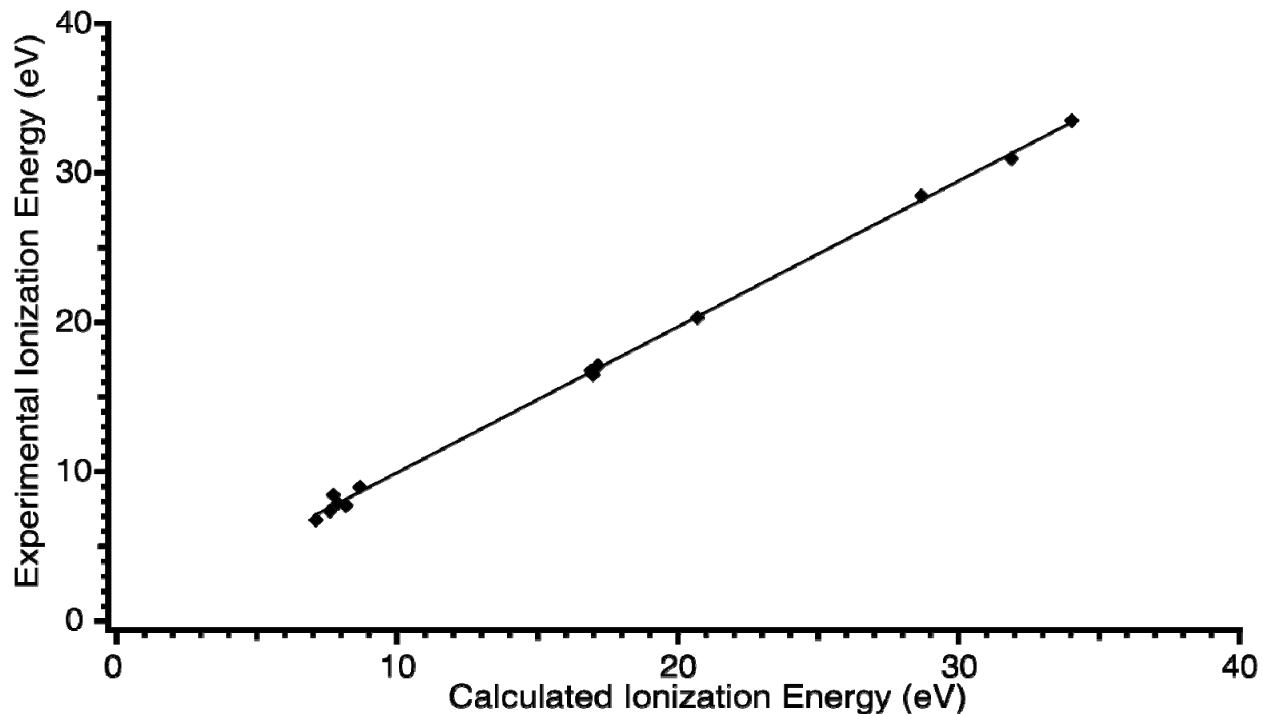
Revised: January 2, 2008

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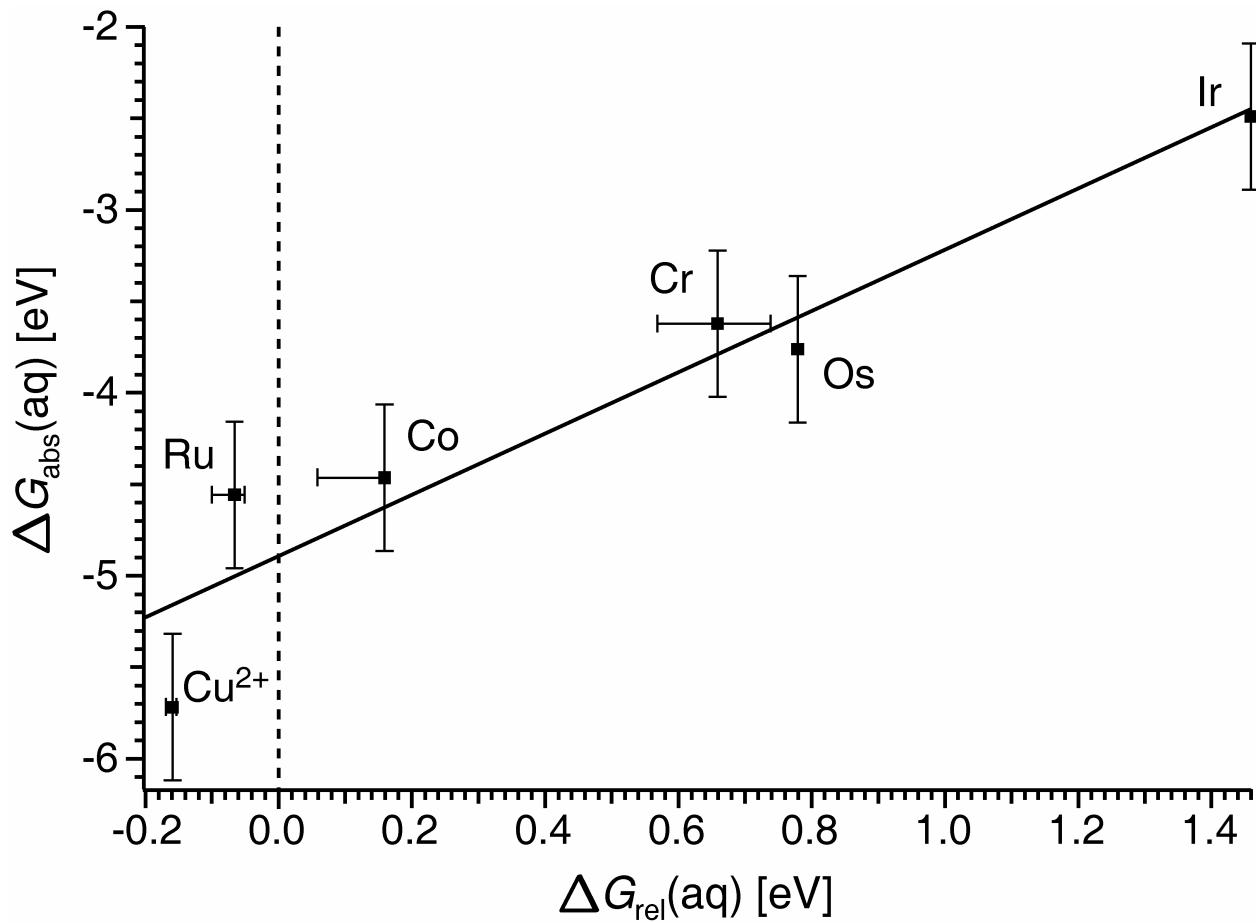
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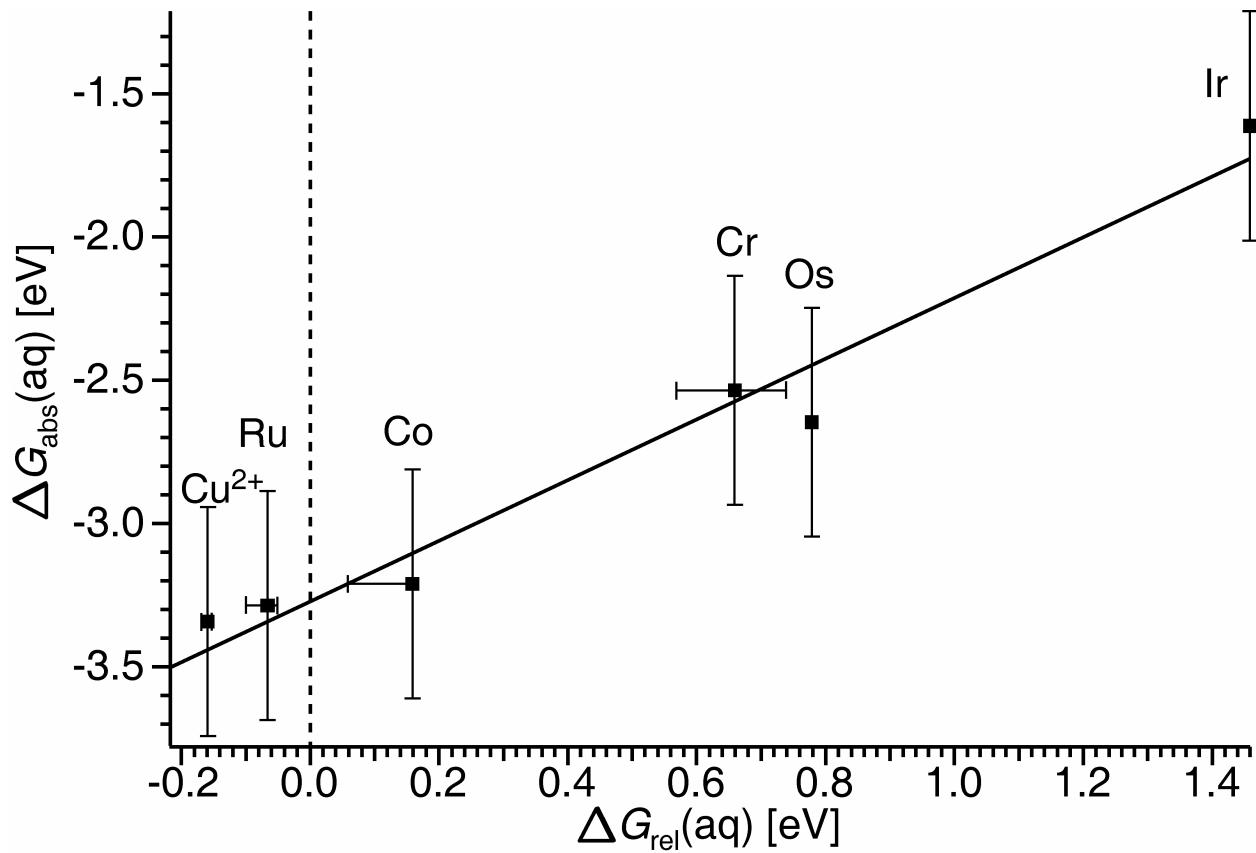
**Calculated Ionization Energies.** The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> ionization energies (IEs) were computed for Ru, Co, Cr, Os and Ir, and the 1<sup>st</sup> and 2<sup>nd</sup> IEs for Cu as described in the experimental section of the manuscript. IEs for which literature values exist (all but the 2<sup>nd</sup> and 3<sup>rd</sup> IEs of Os and Ir)<sup>1</sup> are plotted against the calculated values (Supplemental Figure 1). The calculations are in excellent agreement with the experimental values; a linear regression best fit line to the experimental values versus the calculated values gives a slope of 0.98, an intercept of +0.2 eV, and a squared correlation coefficient ( $R^2$ ) of 0.999.



**Supplemental Figure 1.** Literature values for the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> IEs<sup>1</sup> are compared to calculated IEs for Ru, Co, Cr, Os, Ir and Cu. Literature values for the 2<sup>nd</sup> and 3<sup>rd</sup> IEs of Os and Ir are not available. These data fit a line with a R<sup>2</sup> of 0.999 of slope 0.98 and intercept of 0.2.



**Supplemental Figure 2.** Plot analogous to Figure 5 in the manuscript in which binding energies are calculated using Klots' method<sup>2</sup> and used explicitly in our analysis (see text). The data is fit to a line with a slope of 1.7, *y*-intercept of +4.9 V and R<sup>2</sup> of 0.90.



**Supplemental Figure 3.** Plot analogous to Figure 5 in the manuscript in which water loss occurs much faster than energy deposition (slow internal energy conversion limit). The data is fit to a line with a slope of 1.1,  $y$ -intercept of +3.3 V and  $R^2$  of 0.96.

## References

1. Lide, D. R.; ed. *CRC Handbook of Chemistry and Physics, Internet Version*; 87 ed.; Taylor and Francis: Boca Raton, FL, 2007; p. 10202-10203.
2. Klots, C. E. *J. Chem. Phys.* **1985**, *83*, 5854-5860.