

### Ion exchange behavior of astatine and bismuth

Evgeny E. Tereshatov<sup>a,\*</sup>, Jonathan D. Burns<sup>b</sup>, Steven J. Schultz<sup>a,c</sup>, Brooklyn D. Green<sup>a</sup>, Gabriela A. Picayo<sup>a</sup>,  
Laura A. McCann<sup>a,c</sup>, Lauren A. McIntosh<sup>a</sup>, Gabriel C. Tabacaru<sup>a</sup>, Austin Abbott<sup>a,c</sup>, Matthew Berko<sup>d</sup>, Emily  
Engelthaler<sup>e</sup>, Kris Hagel<sup>a</sup>, Travis Hankins<sup>a,c</sup>, Bryan Harvey<sup>a,f</sup>, Lauren Hoekstra<sup>c</sup>, Kylie Lofton<sup>a</sup>, Sebastian  
Regener<sup>a</sup>, Robert Rider<sup>a,c</sup>, Maxwell Sorensen<sup>a,c</sup>, Alexandra Tabacaru<sup>a</sup>, David Thomas<sup>a</sup>, Justin Tobar<sup>a,c</sup>,  
Zachary Tobin<sup>a,c</sup>, Sherry J. Yennello<sup>a,c</sup>

<sup>a</sup>*Cyclotron Institute, Texas A&M University, College Station, TX 77843, USA*

<sup>b</sup>*Department of Chemistry, University of Alabama at Birmingham, Birmingham, AL 35294, USA*

<sup>c</sup>*Department of Chemistry, Texas A&M University, College Station, TX 77843, USA*

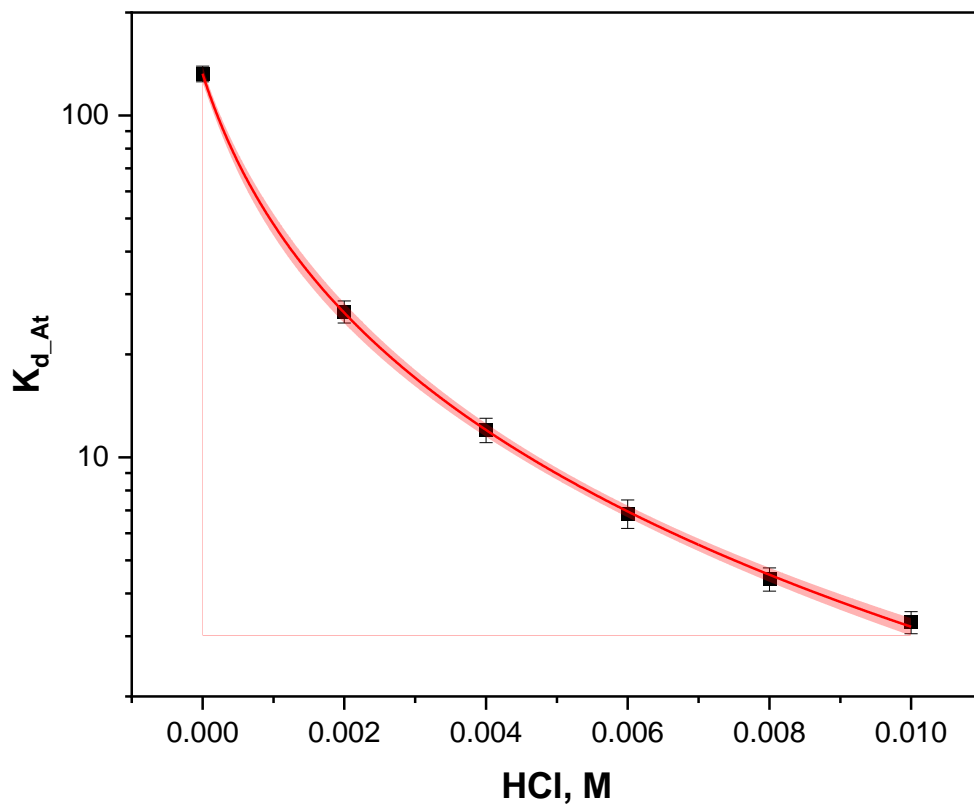
<sup>d</sup>*New Jersey Institute of Technology, Newark, NJ 07102, USA*

<sup>e</sup>*University of Dallas, Irving, TX 75062, USA*

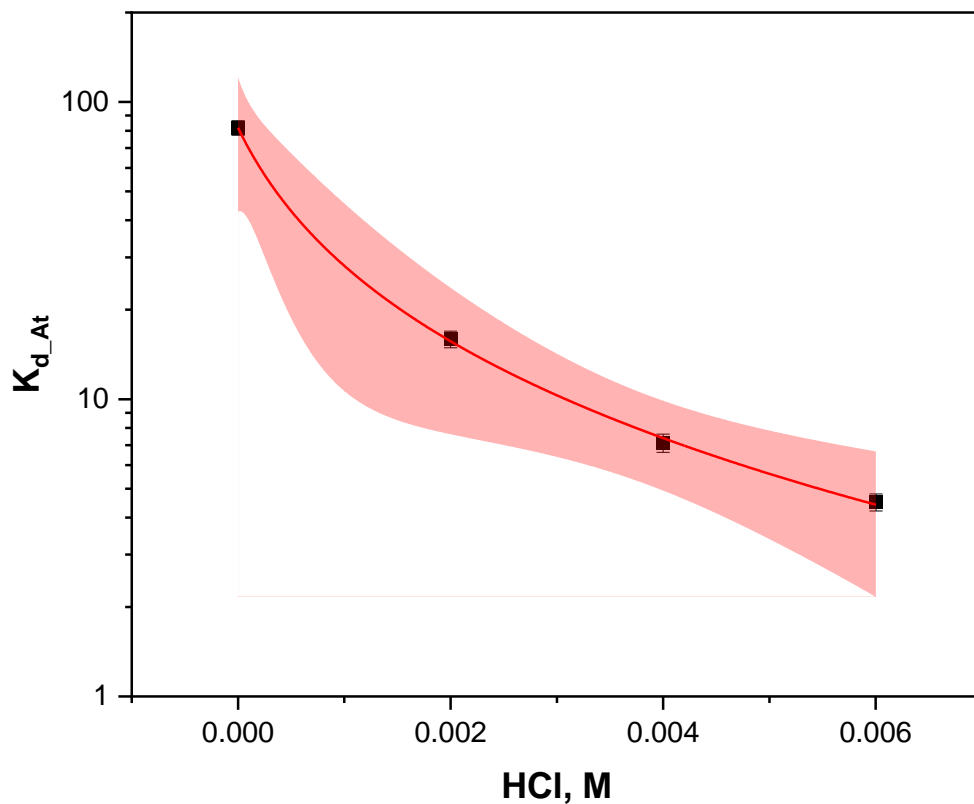
<sup>f</sup>*Department of Physics, Texas A&M University, College Station, TX 77843, USA*

\*Corresponding author: [etereshatov@tamu.edu](mailto:etereshatov@tamu.edu)

### Supplementary Information



**Figure 1S.** Astatine sorption by Dowex 50x8 resin in HCl media in the presence of 5 mM  $H_2Cr_2O_7$  and 0.3 M  $HClO_4$ . Experimental data are from literature [1]. Line is a fit according to eq. 30 (main text). Shade represents 95% confidence interval.



**Figure 2S.** Astatine sorption by Dowex 50x8 resin in HCl media in the presence of 5 mM  $H_2Cr_2O_7$  and 0.5 M  $HClO_4$ . Experimental data are from literature [1]. Line is a fit according to eq. 30 (main text). Shade represents 95% confidence interval.

## References

- [1] D.K. Tyung, I.V. Dudova, V.A. Khalkin, Sorption of cationic form of astatine from aqueous perchloric acid solutions by the sulfonate cationite Dowex-50X8, *Sov. Radiochem. (Engl. Transl.)* 15(4) (1973) 552-556.