

## Supplementary Material

# Elevated Adsorption of Lead and Arsenic over Silver Nanoparticles Deposited on Poly(amidoamine) Grafted Carbon Nanotubes

Gururaj M. Neelgund <sup>1,\*</sup>, Sanjuana F. Aguilar <sup>1</sup>, Mahaveer D. Kurkuri <sup>2</sup>, Debora F. Rodrigues <sup>3</sup> and Ram L. Ray <sup>4</sup>

<sup>1</sup> Department of Chemistry, Prairie View A&M University, Prairie View, TX 77446, USA

<sup>2</sup> Centre for Research in Functional Materials (CRFM), JAIN University, Jain Global Campus, Bengaluru 562112, Karnataka, India

<sup>3</sup> Department of Civil and Environmental Engineering, University of Houston, Houston, TX 77004, USA

<sup>4</sup> College of Agriculture and Human Sciences, Prairie View A&M University, Prairie View, TX 77446, USA

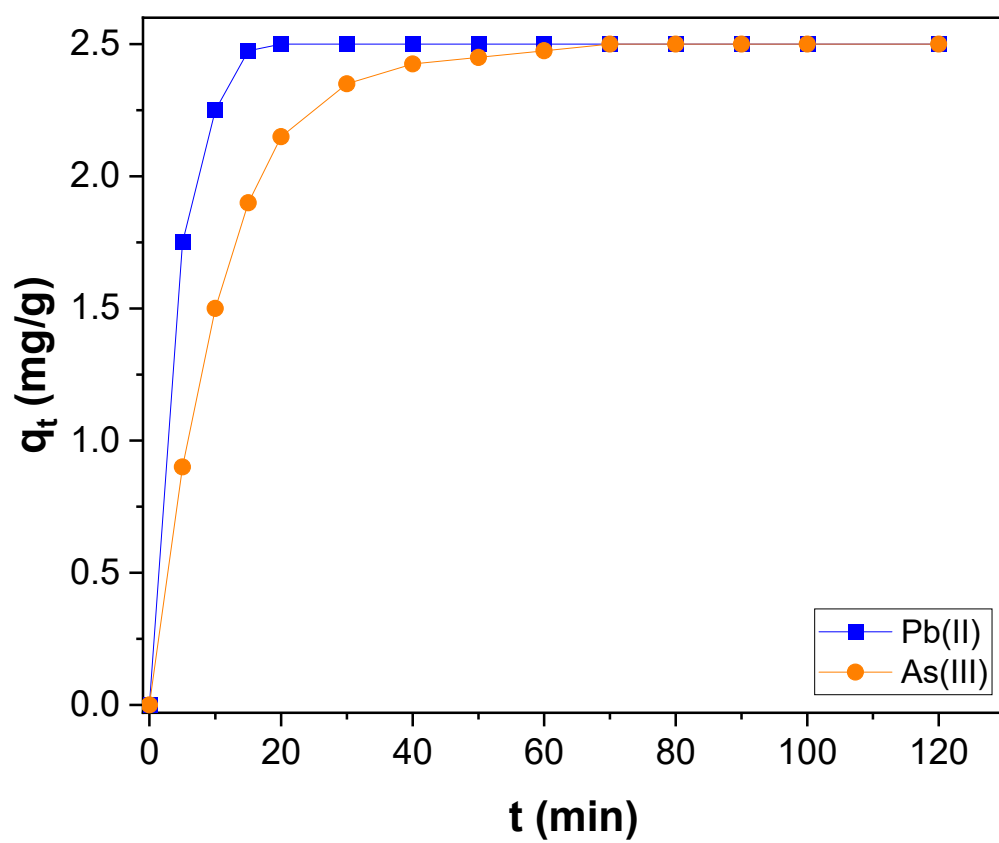
\* Correspondence: gmneelgund@pvamu.edu

**Table S1:** Parameters calculated from the intra-particle diffusion plot provided in Figure S2.

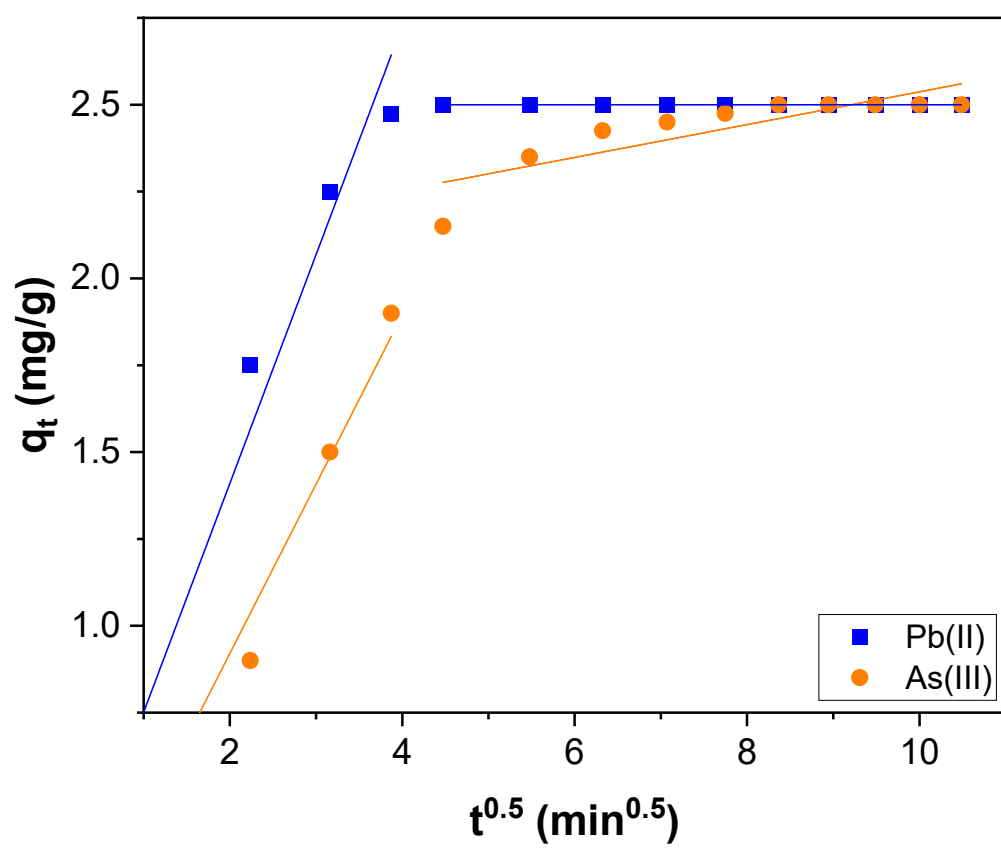
Adsorbent	Intra-particle diffusion model					
	$K_{id-1}$ mg/(g.min <sup>0.5</sup> )	c	R <sup>2</sup>	$k_{id-2}$ mg/(g.min <sup>0.5</sup> )	c	R <sup>2</sup>
Pb(II)	0.6587	0.0920	0.9797	$1.32 \times 10^{-16}$	2.5000	-
As(III)	0.4874	-0.0547	0.9873	0.0472	2.0649	0.7141

**Table S2:** Comparison of maximum adsorption capacity ( $q_m$ ) of CNTs–PAMAM–Ag estimated for Pb(II) and As(III) adsorption with different adsorbents.

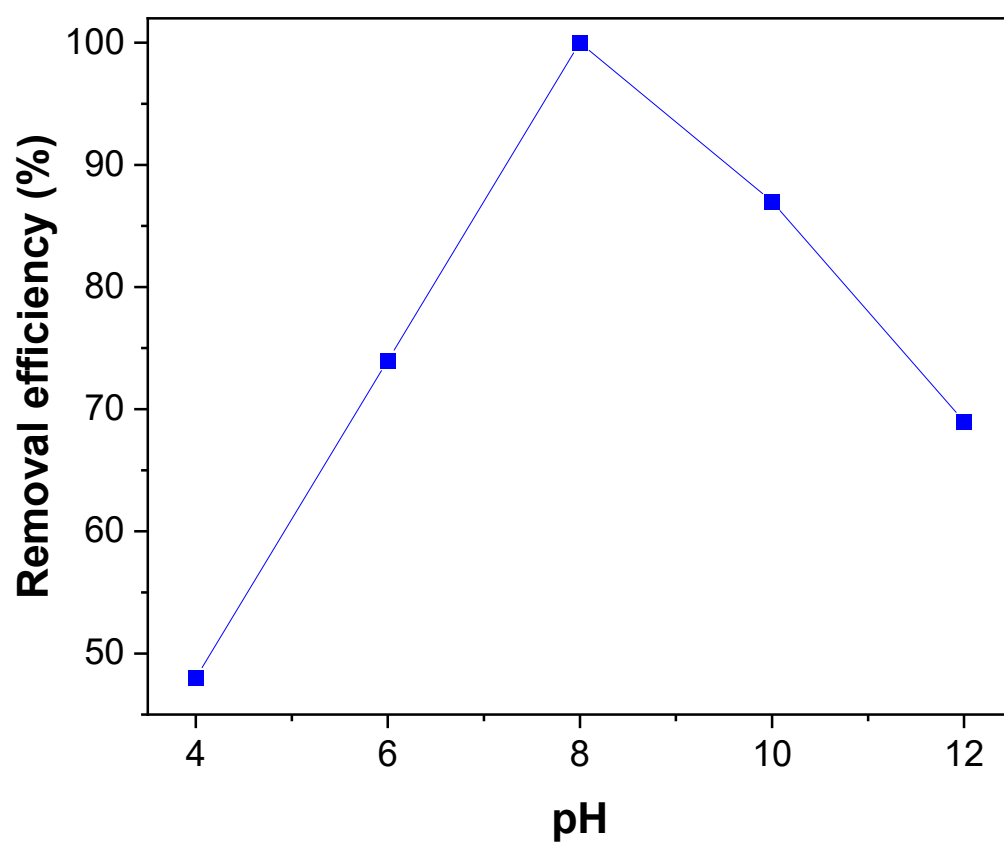
Adsorbent	Adsorbate	maximum	pH	Ref
		adsorption capacity $q_m$ (mg/g)		
CNTs–PAMAM–Ag	Pb(II)	18.7	7.7	This work
6O-MWCNTs@Fe <sub>3</sub> O <sub>4</sub>	Pb(II)	215.05	6.0	42
MWCNTs/ThO <sub>2</sub>	Pb(II)	178.25	5.5	75
50%CNTs/Fe <sub>3</sub> O <sub>4</sub>	Pb(II)	40.88	6.2	76
CNTs	Pb(II)	102.04	5.0	77
CS-MA-DETA	Pb(II)	239.2	5.0	78
CNTs–PAMAM–Ag	As(III)	14.8	8.1	This work
HDTMA-Al-bentonite	As(III)	2.24	4.5	79
Iron-impregnated charred GAP	As(III)	3.25	7.0	80
Aluminum pillared HDTMA sericite	As(III)	0.40	4.5	81
CTMAB-Fe-Montmorillonite	As(III)	11.36	6.5	82
Fe/Mn-HDTMA kaolin	As(III)	7.99	6.5	4



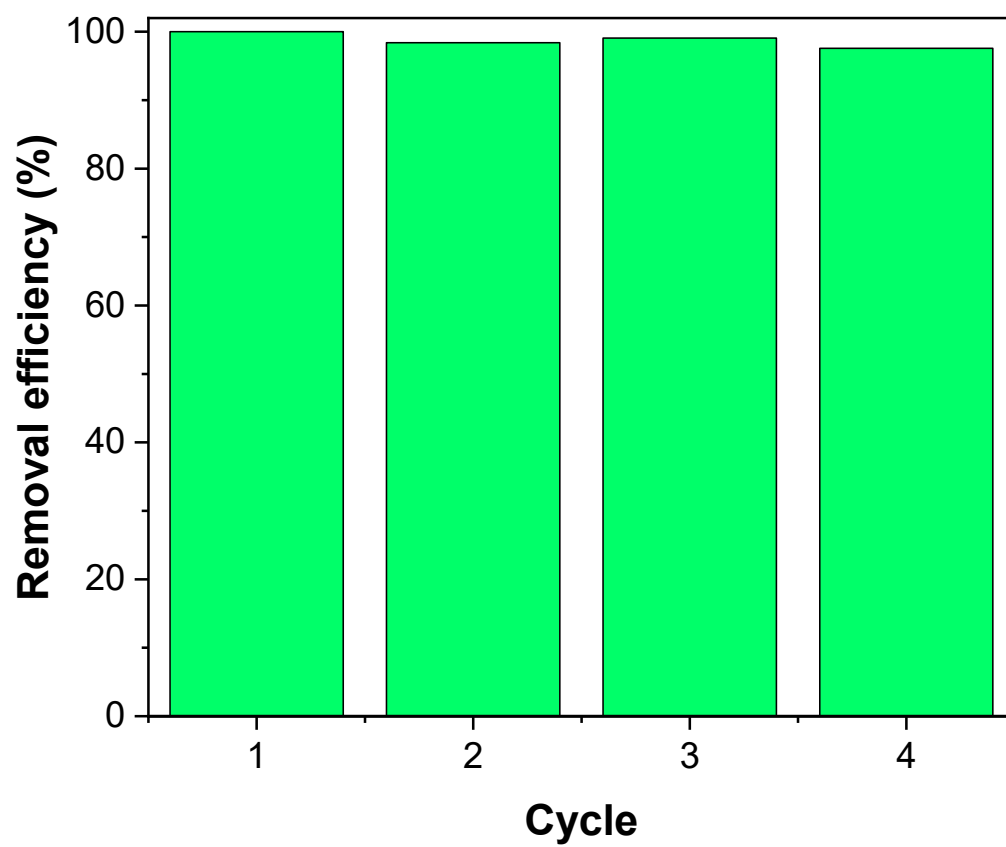
**Figure S1:** Plot perceived  $q_t$  as a function of time for Pb(II) and As(III) adsorption over CNTs-PAMAM-Ag.



**Figure S2:** Intraparticle diffusion model for Pb(II) and As(III) adsorption over CNTs-PAMAM-Ag.



**Figure S3:** Effect of pH on the adsorption of Pb(II) over CNTs-PAMAM-Ag.



**Figure S4:** Efficiency of CNTs–PAMAM–Ag in the adsorption of Pb(II) for four successive cycles.