

Materials List for:

Multiscale Sampling of a Heterogeneous Water/Metal Catalyst Interface using Density Functional Theory and Force-Field Molecular Dynamics

Cameron J. Bodenschatz^{*1}, Xiaohong Zhang^{*1}, Tianjun Xie^{*1}, Jeremy Arvay^{1,2}, Sapna Sarupria¹, Rachel B. Getman¹

¹Department of Chemical and Biomolecular Engineering, Clemson University

²Davidson School of Chemical Engineering, Purdue University

*These authors contributed equally

Correspondence to: Rachel B. Getman at rgetman@g.clemson.edu

URL: <https://www.jove.com/video/59284>

DOI: [doi:10.3791/59284](https://doi.org/10.3791/59284)

Materials

| Name | Company | Catalog Number | Comments |
|----------------------|---------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VASP software | Computational Materials Physics, Dept. of Physics, University of Vienna | vasp.5.4.4 | Standard parallel VASP executable in the newest version. |
| LAMMPS software | Sandia National Laboratory | 31Mar17-dp | Double-precision, parallel LAMMPS executable from 31 March 2017. |
| VMD software | Theoretical and Computational Biophysics Group, University of Illinois at Urbana-Champaign | 1.9.3 | Standard VMD executable in the newest version. |
| MCPIQ software | Getman Research Group, Dept. of Chemical and Biomolecular Engineering, Clemson University | | Executable and input files for the MCPiQ software available from the Getman Research Group GitHub page. |
| JoVE article scripts | Getman Research Group, Dept. of Chemical and Biomolecular Engineering, Clemson University | | Python scripts for this JoVE manuscript available from the Getman Research Group GitHub page. |
| H2O PDB file | Getman Research Group, Dept. of Chemical and Biomolecular Engineering, Clemson University or RCSB Protein Data Bank | | PDB file for a water molecule, available from the Getman Research Group GitHub page or at http://www.rcsb.org/ligand/HOH . |