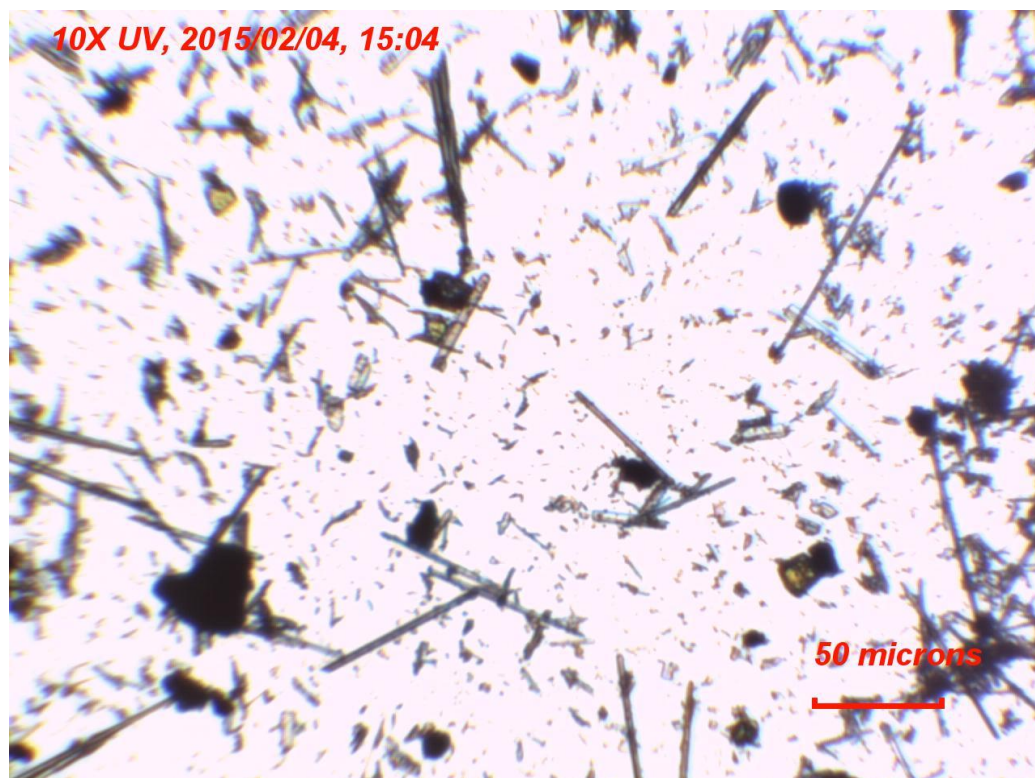


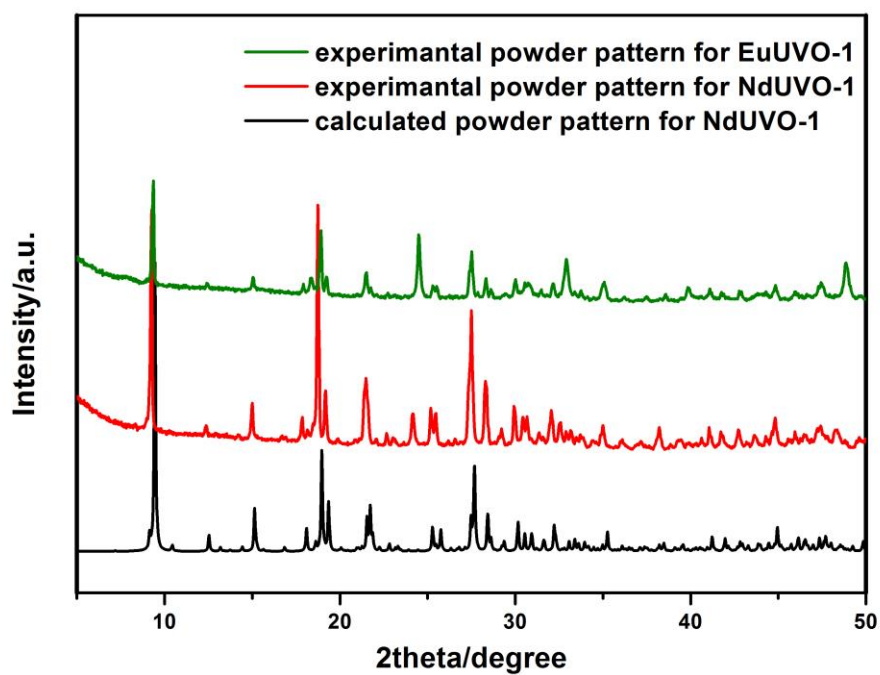
## Supporting Information

### Insertion of Trivalent Lanthanides into Uranyl Vanadate Layers and Frameworks

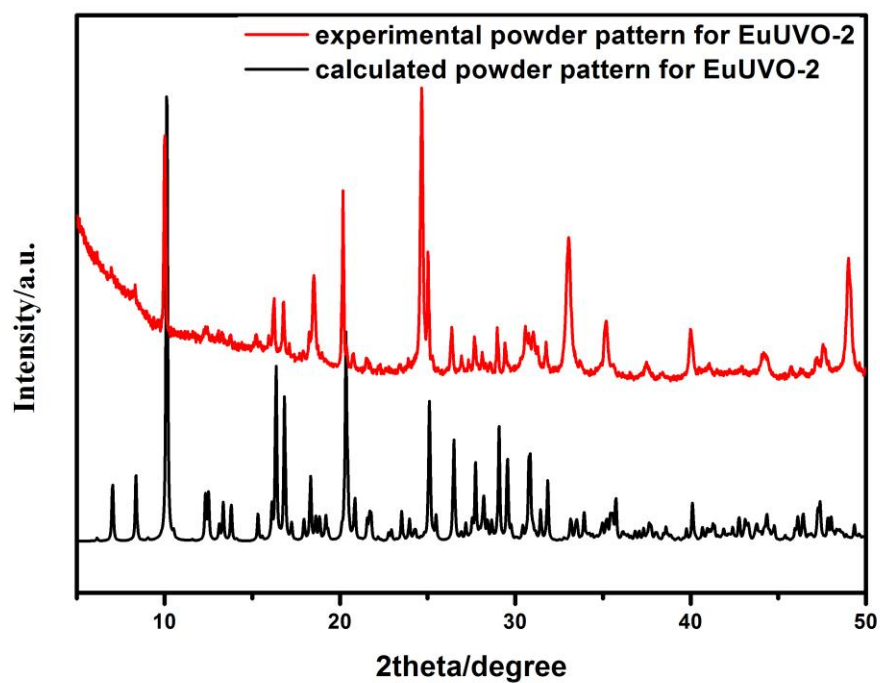
Yaxing Wang<sup>1,2</sup>, Xuemiao Yin<sup>1,2</sup>, Yanyan Zhao<sup>1,2</sup>, Yang Gao<sup>1,2</sup>, Lanhua Chen<sup>1,2</sup>, Zhiyong Liu<sup>1,2</sup>, Daopeng Sheng<sup>1,2</sup>, Juan Diwu<sup>1,2</sup>, Zhifang Chai<sup>1,2</sup>, Thomas E. Albrecht-Schmitt,<sup>3</sup> Shuao Wang<sup>\*1,2</sup>



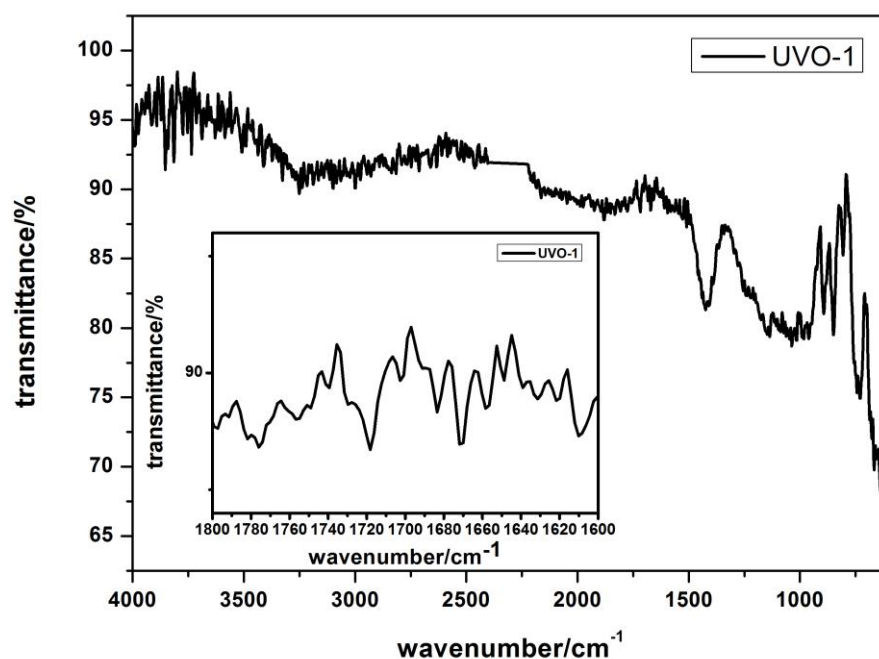
**Figure S1.** Products containing minor phase yellow prismatic crystal of **UVO-1** and major phase colorless acicular crystal of **UVO-2**, and unreacted black  $V_2O_3$ .



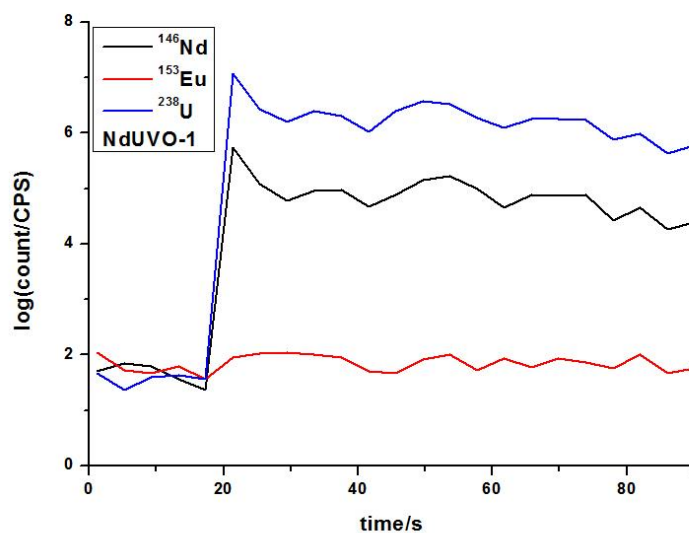
**Figure S2.** X-ray powder diffraction patterns for **NdUVO-1** and **EuUVO-1**.



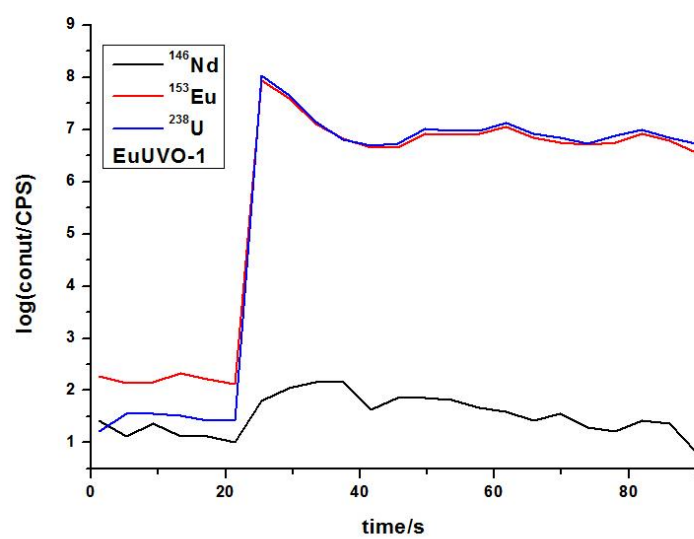
**Figure S3.** X-ray powder diffraction pattern for **EuUVO-2**.



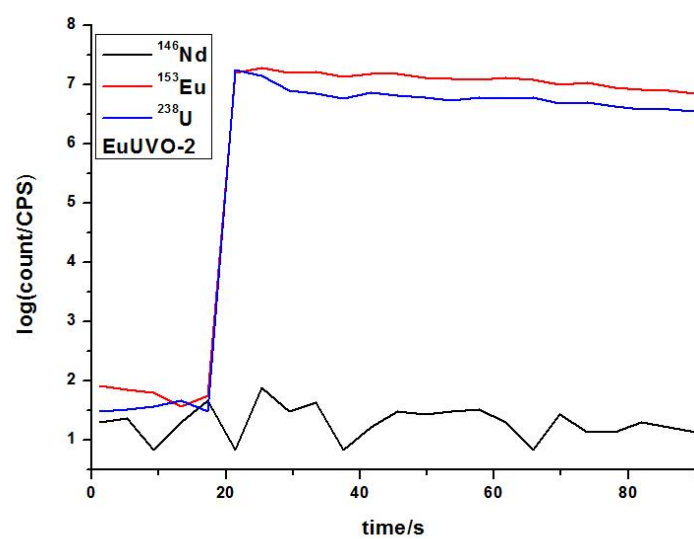
**Figure S4.** Fourier Transfer Infrared spectrum of **UVO-1** taken on a single crystal.



**Figure S5.** Illustration of a typical time-resolved spectrum (ion signal vs. time) for a LA-ICP-MS analysis of a single **NdUVO-1** crystal. Time interval between 0 and ~20 seconds represents background measurement, whereas subsequent interval represents measurement of ion signals after the start of laser ablation.



**Figure S6.** LA-ICP-MS data for **EuUVO-1**.



**Figure S7.** LA-ICP-MS data for **EuUVO-2**.