

# **Supplementary Information**

## **Zeolite Y Films as Ideal Platform for Evaluation of Third-Order Nonlinear Optical Quantum Dots**

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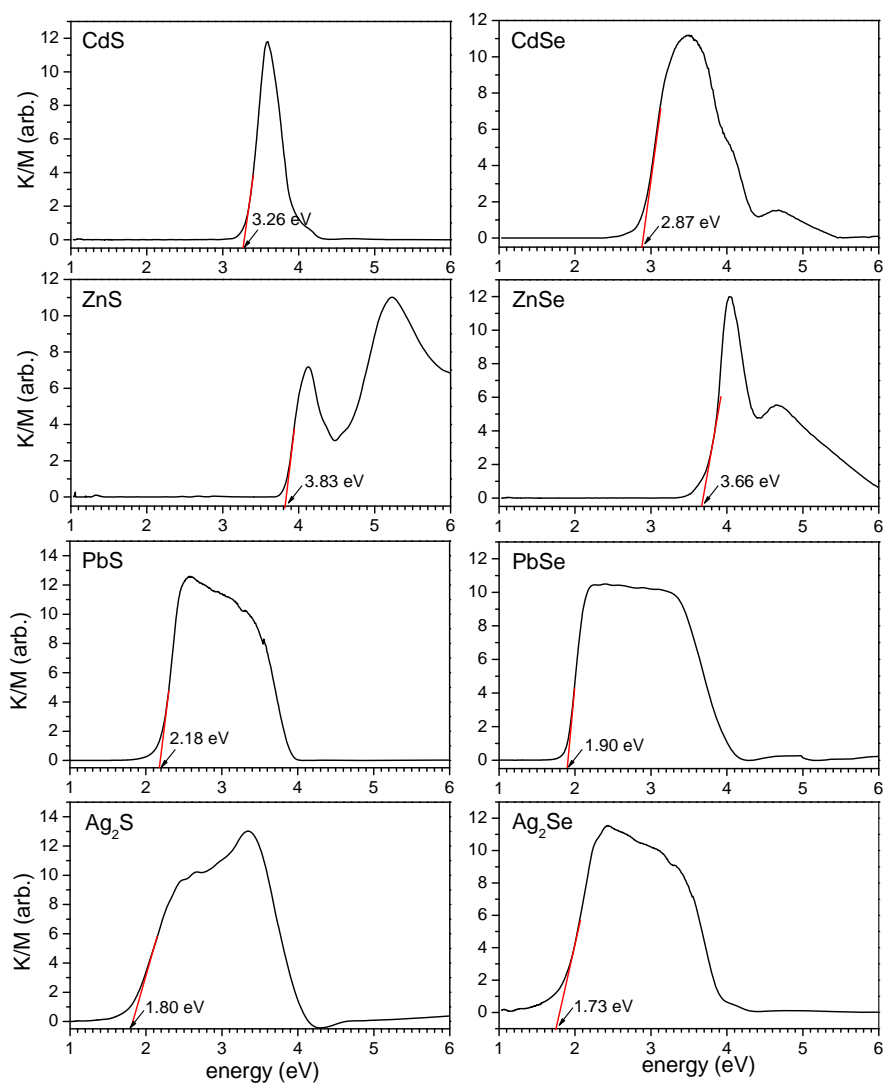
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## SI-1. Chemical Compositions of [MS]-Y<sub>f</sub> and [MSe]-Y<sub>f</sub>

**Table SI-1.** Compositions of [MS]-Y<sub>f</sub> and [MSe]-Y<sub>f</sub>, respectively.

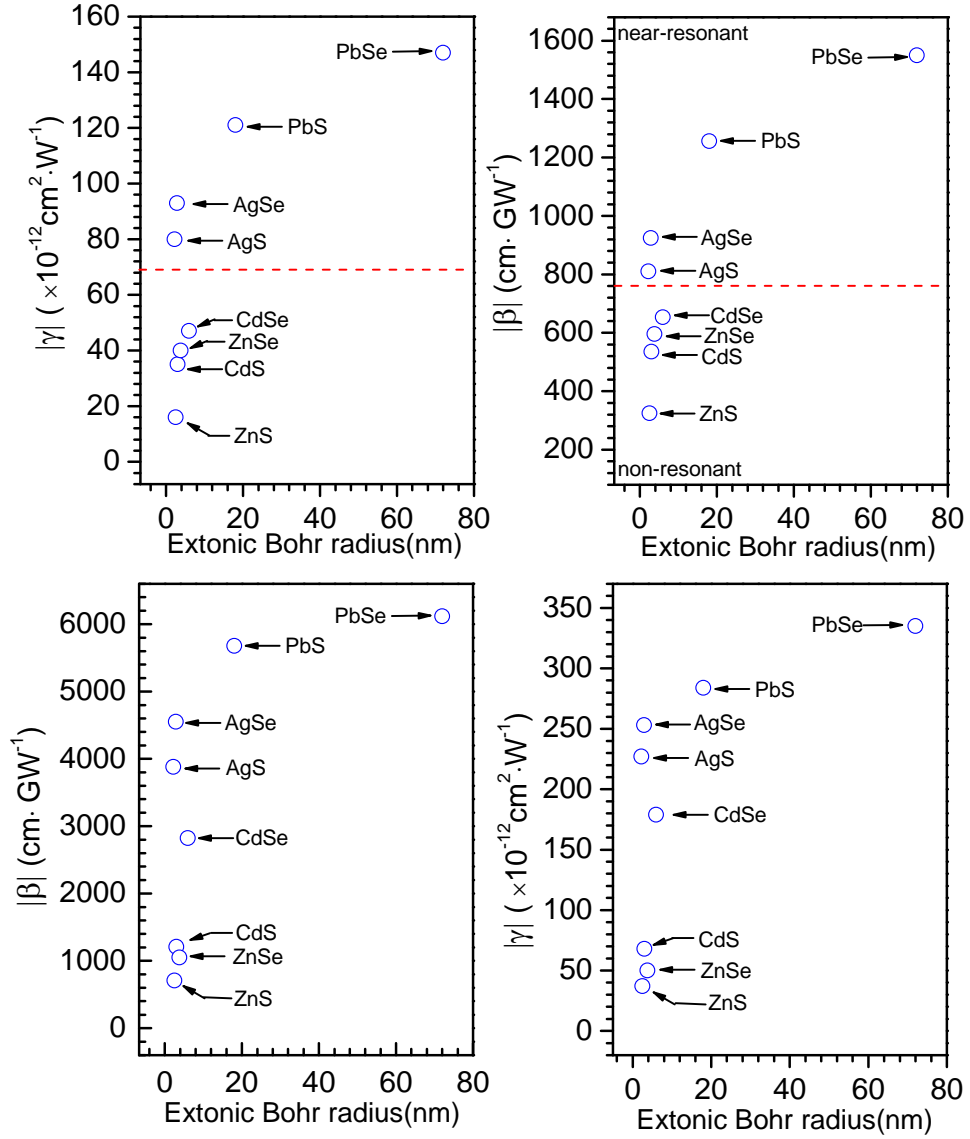
Zeolite film	Composition
[PbS]-Y <sub>f</sub>	Pb <sub>33.4</sub> S <sub>33.0</sub> H <sub>66.0</sub> Na <sub>3.5</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[PbSe]-Y <sub>f</sub>	Pb <sub>33.1</sub> Se <sub>32.1</sub> H <sub>64.6</sub> Na <sub>3.8</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[CdS]-Y <sub>f</sub>	Cd <sub>33.2</sub> S <sub>33.1</sub> H <sub>66.0</sub> Na <sub>3.5</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[CdSe]-Y <sub>f</sub>	Cd <sub>33.1</sub> Se <sub>32.0</sub> H <sub>64.6</sub> Na <sub>3.8</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[ZnS]-Y <sub>f</sub>	Zn <sub>33.4</sub> S <sub>33.2</sub> H <sub>66.0</sub> Na <sub>3.5</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[ZnSe]-Y <sub>f</sub>	Zn <sub>33.1</sub> Se <sub>32.1</sub> H <sub>64.6</sub> Na <sub>3.8</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[Ag <sub>2</sub> S]-Y <sub>f</sub>	Ag <sub>62.7</sub> S <sub>33.0</sub> H <sub>66.0</sub> Na <sub>3.5</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>
[Ag <sub>2</sub> Se]-Y <sub>f</sub>	Ag <sub>62.7</sub> Se <sub>32.1</sub> H <sub>64.6</sub> Na <sub>3.8</sub> Al <sub>70.3</sub> Si <sub>121.7</sub> O <sub>384</sub>

## SI 2. Optical band gap of various QDs in Yfs



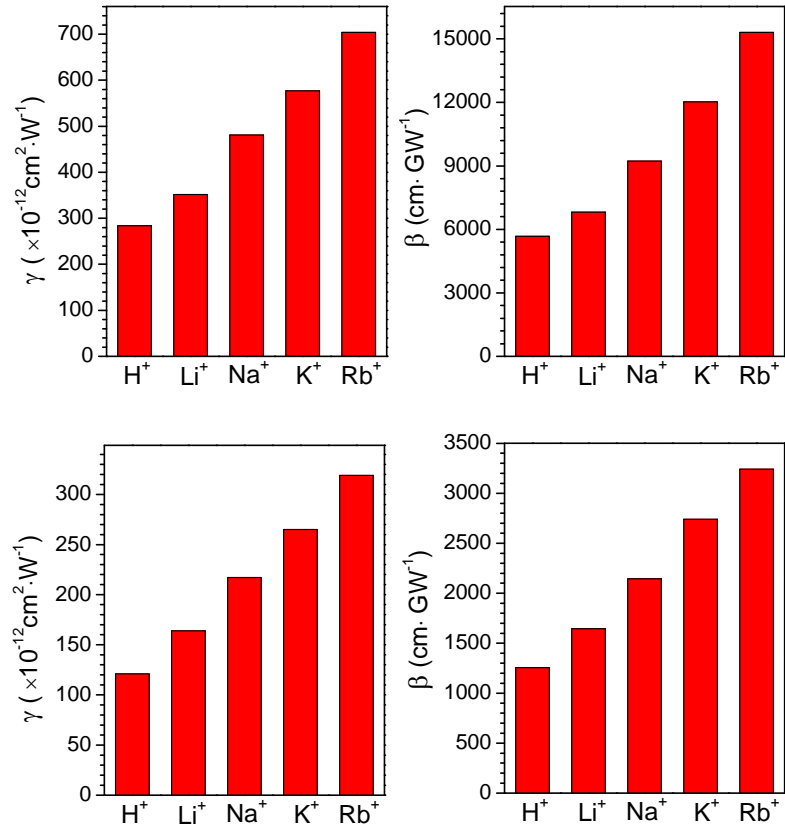
Estimation optical band gap from diffuse reflectance spectra of indicated [MSe or MS]-Yfs respectively.

### SI-3. Cations effect to 3<sup>rd</sup> NLO response of [PbSe]-Yfs



Plots of (right)  $\beta$  and (left)  $\gamma$  measured at (top) 1064 nm and at (bottom) 532 nm vs extonic bohr radius and as indicated [MSe or MS]-Yfs.

#### SI-4. Cations effect to 3<sup>rd</sup> NLO response of [PbSe]-Yfs



Estimation optical band gap from diffuse reflectance spectra of indicated [MSe or MS]-Yfs respectively.