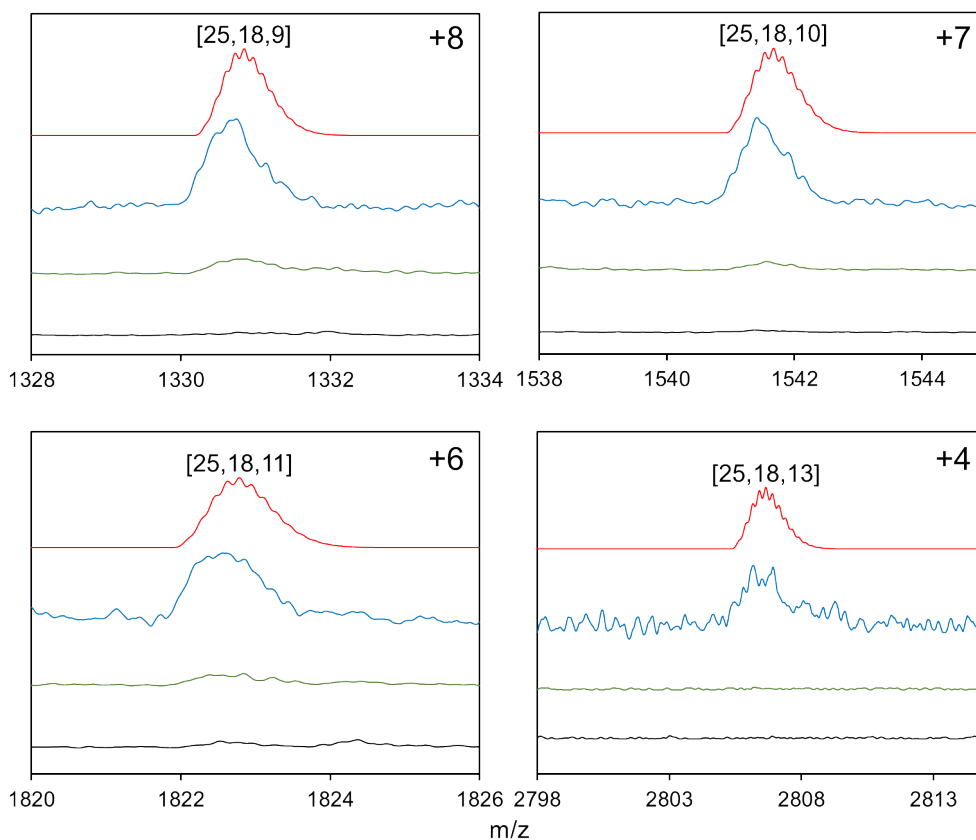


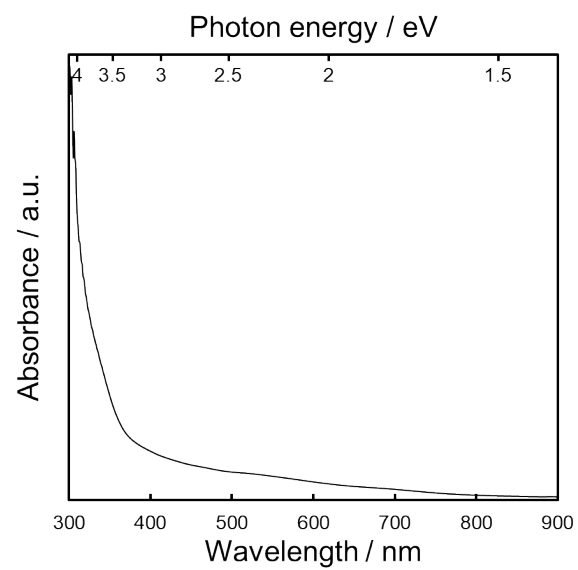
## Super Polycationic Molecular Compounds: $\text{Au}_{144}(\text{SR}^+)_{60}$ Clusters

Kunihiro Narita, Yohei Ishida\*, Tetsu Yonezawa\*, and Zhong Huang

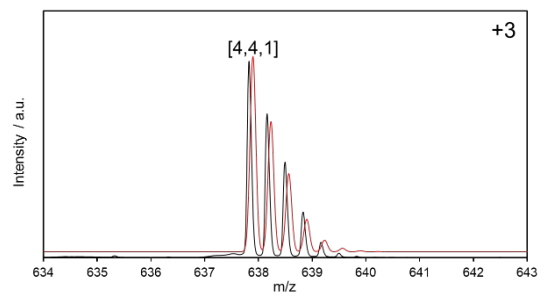
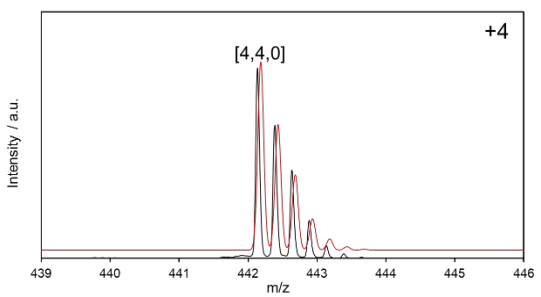
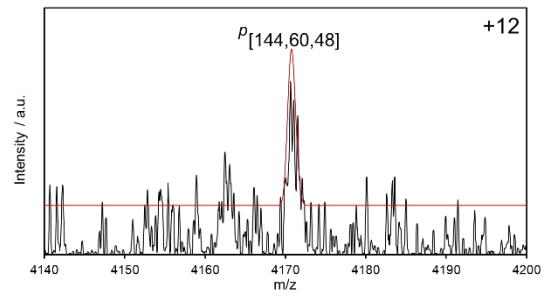
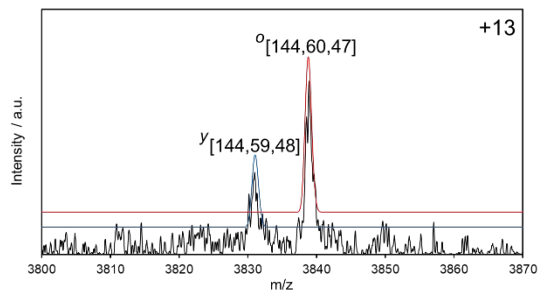
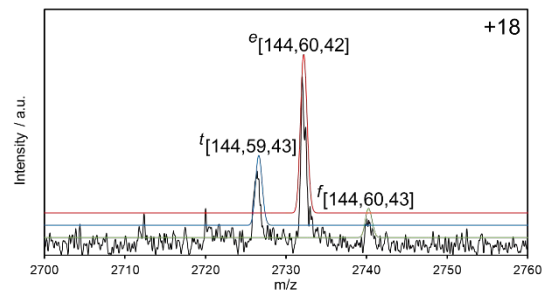
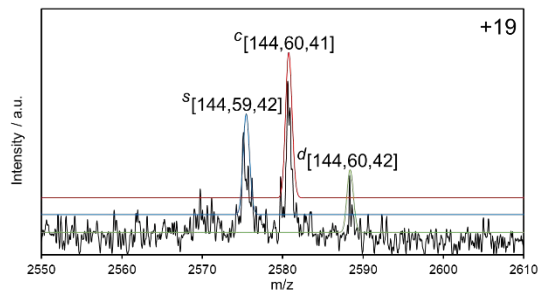
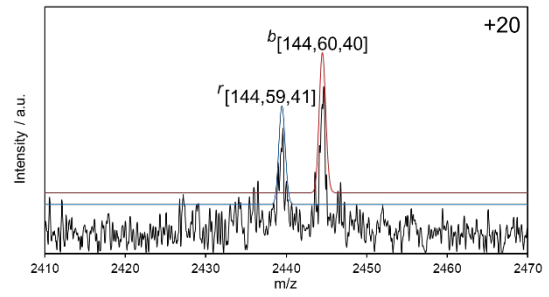
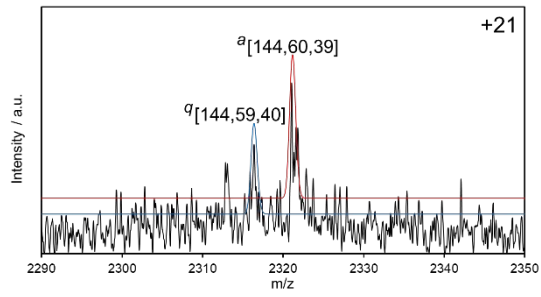
Division of Materials Science and Engineering, Faculty of Engineering, Hokkaido University, Kita  
13 Nishi 8, Kita-ku, Sapporo, Hokkaido 060-8628, Japan.

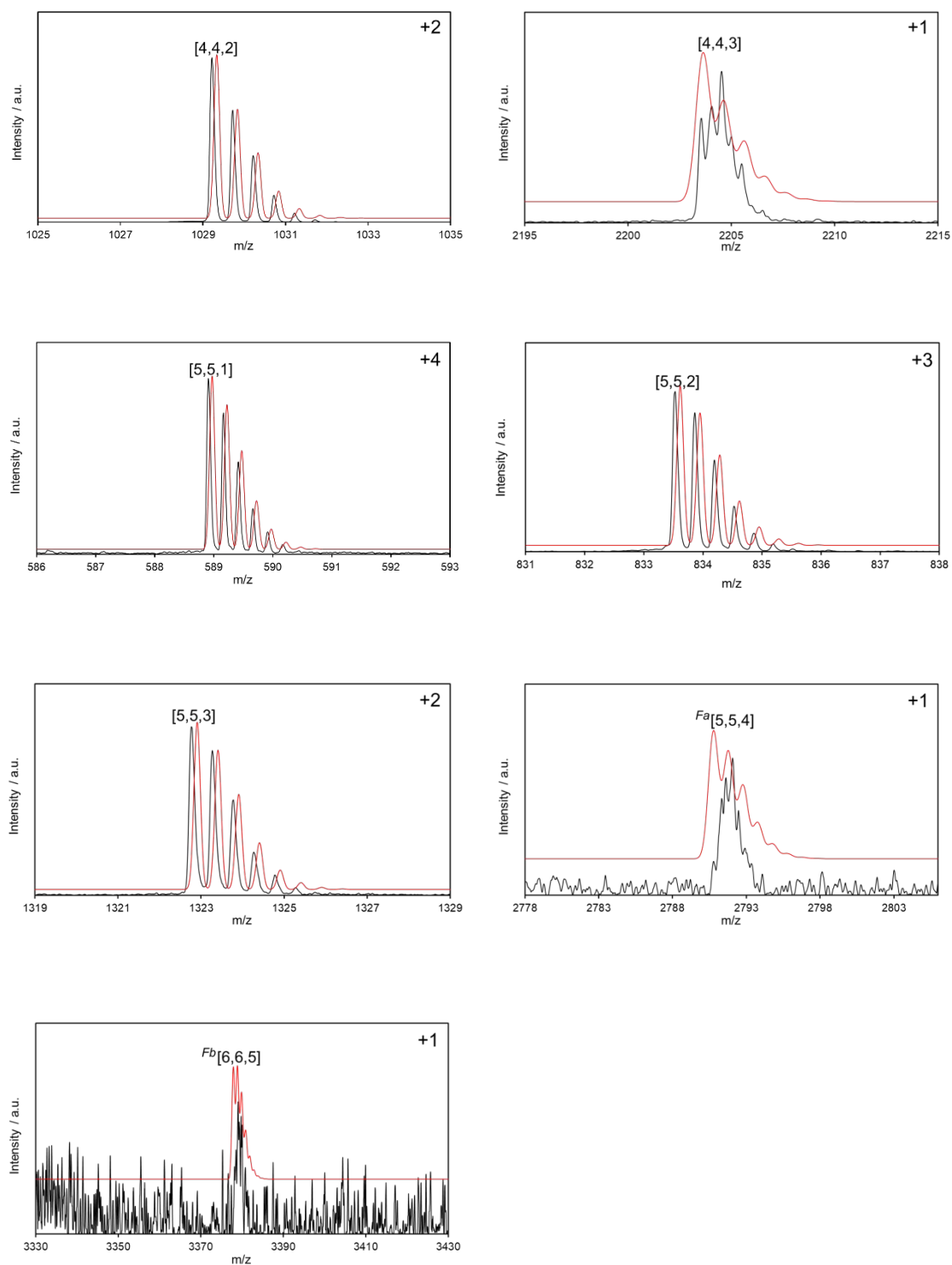


**Figure S1.** The effect of thermal etching and selective-reprecipitation. ESI-MS of after thermal etching for 1 day (blue) and after thermal etching for 3 days (green) and after selective precipitation (black), with the simulated isotopic patterns (red). The values in the brackets denote [number of Au, number of  $\text{SR}^+$ , number of  $\text{PF}_6^-$  anions]. The theoretical  $m/z$  values of each cluster are,  $m/z=1330.84$  (+8),  $1541.67$  (+7),  $1822.78$  (+6),  $2806.65$  (+4).

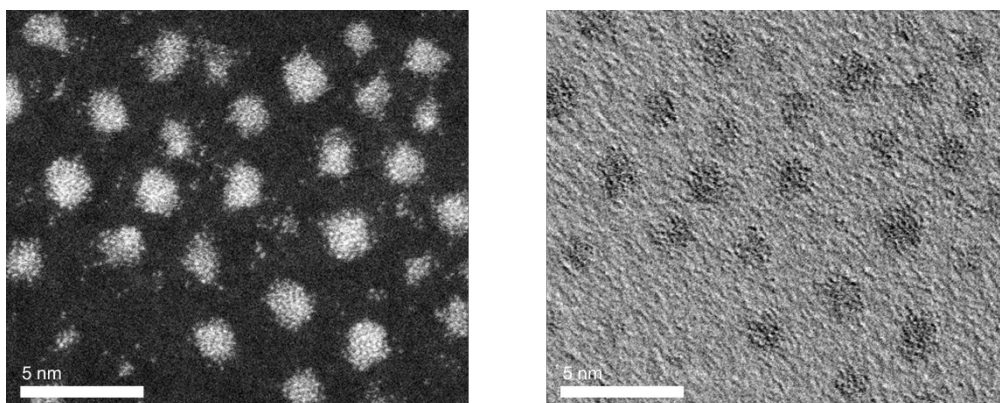


**Figure S2.** Absorption spectra of obtained Au clusters after thermal etching for 1 day and selective precipitation.





**Figure S3.** Magnified ESI-MS (black lines) and simulations (red, green and blue lines) for the other observed peaks. The values in the brackets denote [number of Au, number of  $\text{SR}^+$ , number of  $\text{PF}_6^-$  anions].



**Figure S4.** HAADF (left) and BF (right) STEM image of the obtained Au<sub>144</sub> clusters.