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*JOURNAL OF RARE EARTHS, Vol. 35, No. 2, Feb. 2017, P. 177*

## Synthesis of ion imprinted polymers for selective recognition and separation of rare earth metals

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Received 16 May 2016; revised 8 November 2016

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**Abstract:** Lanthanide-ion imprinted polymers (L-IIPs) were synthesized by stoichiometric amounts of rare earth ions and the cavities in the polymers were created for the corresponding lanthanide ions. The maximum sorption capacities were estimated to be 125.3, 126.5, 127.6, 128.2 and 129.1 mg/g for Pr, Nd, Sm, Eu and Gd, respectively at pH 6. In the selectivity study, the L-IIPs exhibited good selectivity to the specific rare earth ions in the presence of coexisting cations. The imprinting results were found to be excellent with some rare earth ions over other competitor rare earth ions with the same charges and close ionic radius.

**Keywords:** ion-imprinted polymers; rare earths; separation; adsorption; lanthanide-ions

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