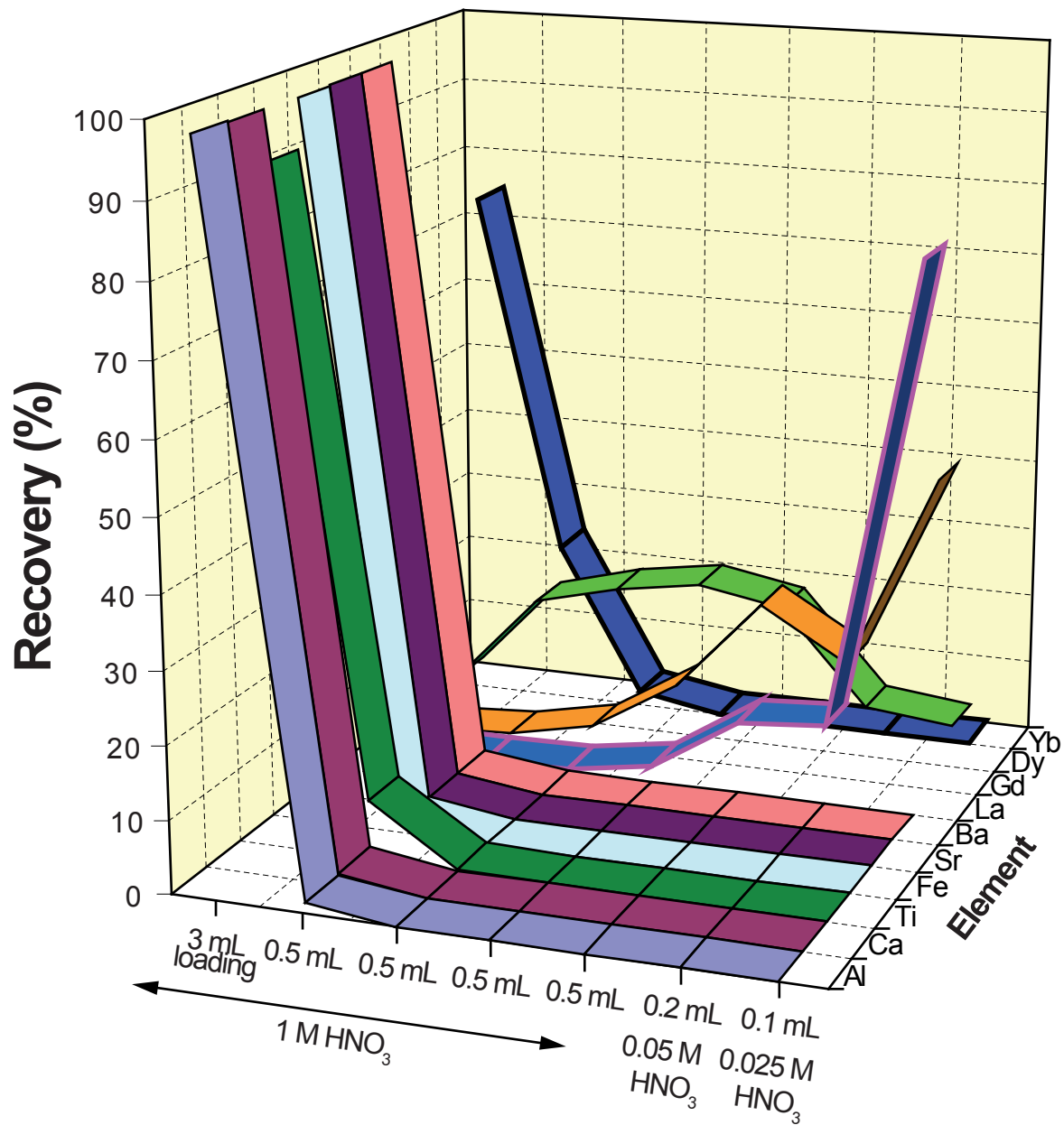
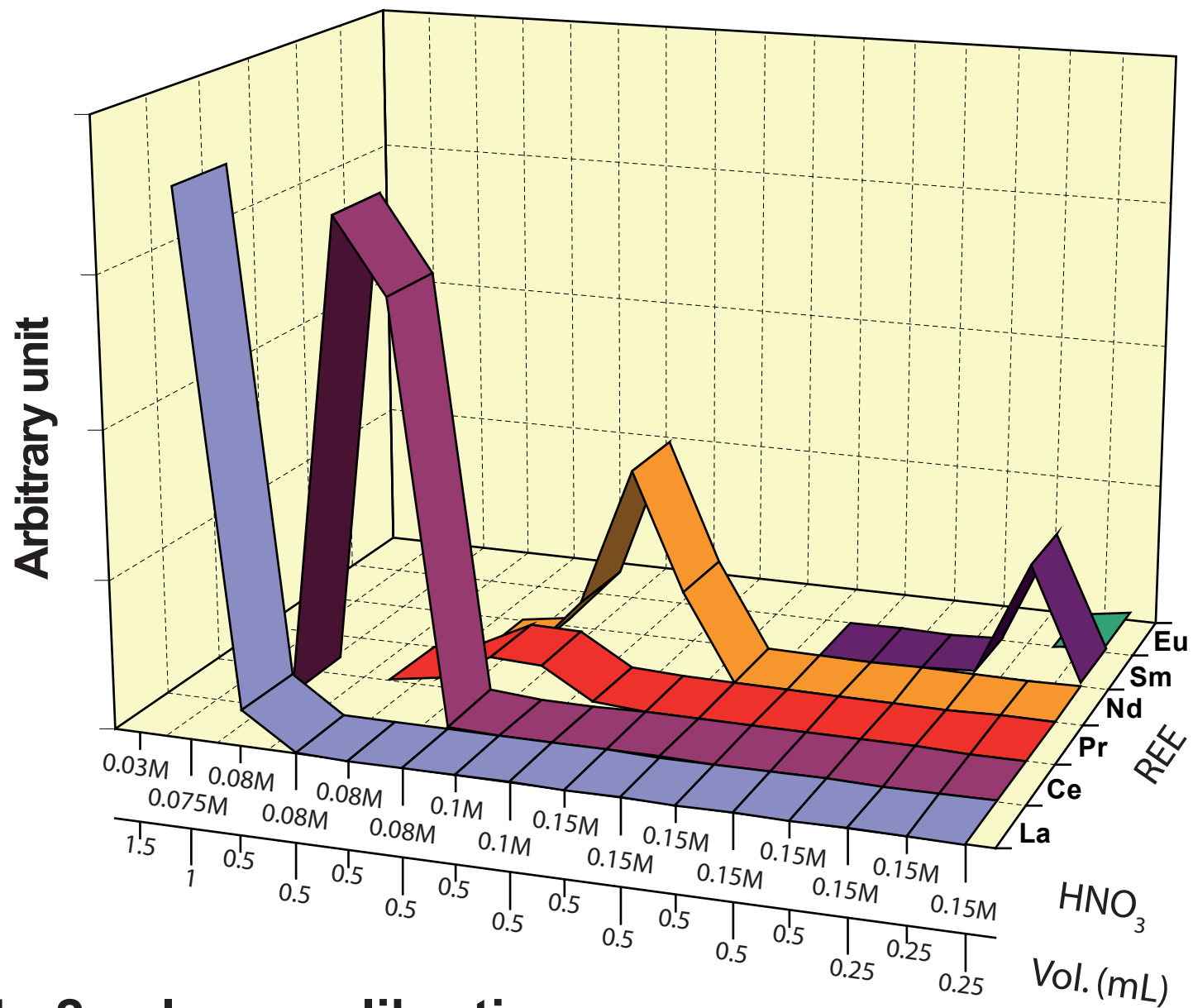


Supplementary information. Outline of the separation scheme enabling the isolation of highly purified Nd by extraction chromatography

	Reagents	Volume (mL)
Column pre-cleaning and pre-conditioning		
TRU Spec (83 mg)	1 M HNO ₃ 1 M HNO ₃ -C ₆ H ₈ O ₆	2 × 0.2 0.25
Ln2 (350 mg)	0.025 M HNO ₃ H ₂ O (just before tandem setup)	2 × 0.1 0.1
DGA (350 mg)	0.1 M HNO ₃	2 × 0.1
TRU Spec alone		
Sample loading	1 M HNO ₃ -C ₆ H ₈ O ₆	4 × 0.5
Rinse	1 M HNO ₃ -C ₆ H ₈ O ₆	0.25
Matrix elution	1 M HNO ₃ 0.05 M HNO ₃ 0.025 M HNO ₃	4 × 0.5 0.25 0.1
TRU spec and Ln2 columns in tandem		
Elution of LREE	0.025 M HNO ₃	4 × 0.5
Columns decoupling and further elution		
Ln2 Elution of La, Ce, Pr	0.08 M HNO ₃	2.9
Ln2 and DGA columns in tandem		
Online elution of Nd	0.1 M HNO ₃	3
Columns decoupling and further elution		
DGA Rinse Pre-Nd cut	0.05 M HNO ₃ 0.0275 M HNO ₃ 0.01 M HCl	0.5 2 × 2.5 0.25
Ln2 (Elution of Sm, optional)	0.3 M HNO ₃ 0.5 M HNO ₃ 3M HNO ₃ 0.5 M HNO ₃ 0.03 M HNO ₃	1.2 1 0.5 0.2 0.1
pre-conditioning	0.01 M HCl	0.2
DGA and preconditioned Ln2 in tandem		
Online elution of Nd	0.01 M HCl	2
Columns decoupling and further elution		
Ln2 Elution of Nd	0.05 M HNO ₃ 0.08 M HNO ₃ 0.1 M HNO ₃ 0.15 M HNO₃	0.1 2.5 0.1 3
Cleaning before storage		
Ln2	3 M HNO ₃ 0.3 M HNO ₃	1 1
DGA	1 M HCl 0.01 M HCl	1 2
TRU Spec	0.1 M HCl - 0.29 M HF 0.05 M HNO ₃ 2 M HCl 0.05 M HNO ₃	3 3 2 2



TRU Spec column calibration



Ln2 column calibration