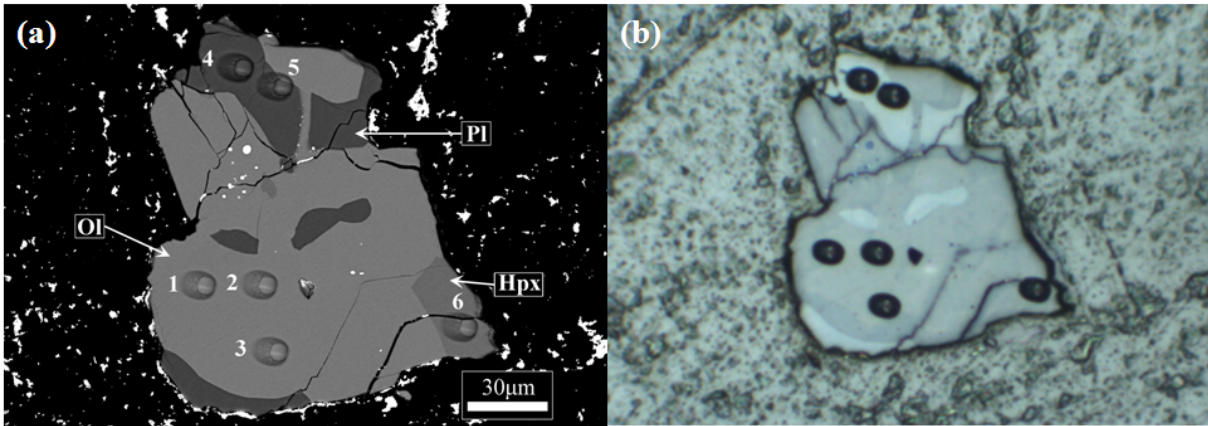
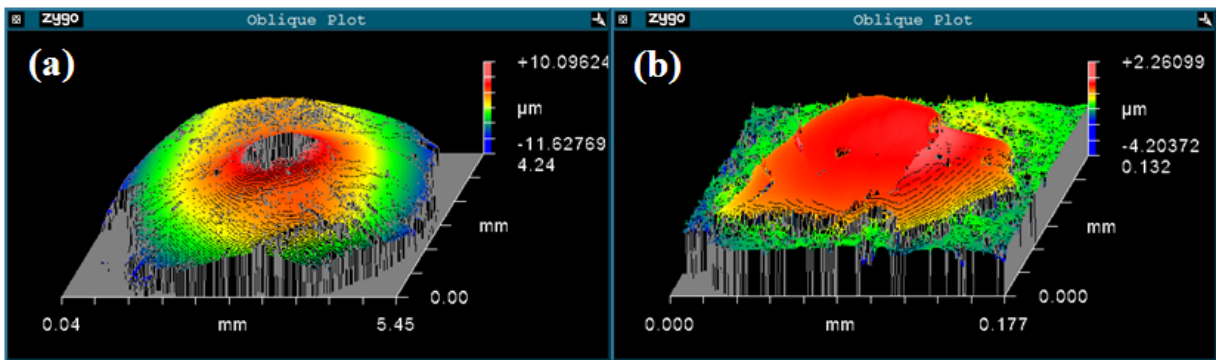


## RA-QD02-0010



Images of the Itokawa particle RA-QD02-0010 after SIMS analyses; (a) back scattered electron image (Nakashima et al. 2013, EPSL) and (b) optical microscope image. In panel a, numbers near the SIMS pits in the image indicate spot numbers of SIMS analysis, which correspond to spot numbers in a table shown below. Abbreviations: Ol, olivine; Pl, plagioclase; Hpx, high-Ca pyroxene. White materials around the particle are remnant of Au-coating.



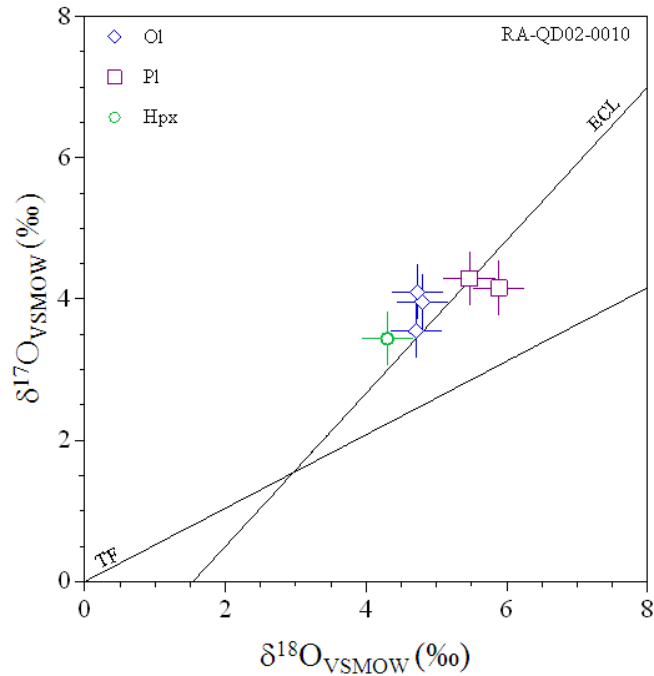
Surface profiles of the 6mm epoxy disk containing the Itokawa particle RA-QD02-0010 (a) and the particle located at the center of the disk (b). The surface profile data were obtained by a ZYGO white light profilometer at the Material Science Center (UW-Madison) before SIMS analyses. In panel a, surface profile data of the central area are lacking, because Au-coating was removed and surface was dim.

## RA-QD02-0010

Oxygen three-isotope ratios of the Itokawa particle RA-QD02-0010 measured by IMS-1280 (WiscSIMS; Nakashima et al. 2013, EPSL)

Sample name	Spot#	$\delta^{18}\text{O} \pm 2\sigma$ (‰) <sup>a</sup>		$\delta^{17}\text{O} \pm 2\sigma$ (‰) <sup>a</sup>		$\Delta^{17}\text{O} \pm 2\text{SD}$ (‰)		Target
RA-QD02-0010	1	4.71	0.36	3.55	0.38	1.11	0.33	OI
	2	4.80	0.36	3.96	0.38	1.47	0.33	OI
	3	4.73	0.36	4.10	0.38	1.64	0.33	OI
	4	5.89	0.36	4.16	0.38	1.10	0.33	Pl
	5	5.47	0.36	4.29	0.38	1.45	0.33	Pl+OI
	6	4.30	0.36	3.44	0.38	1.21	0.33	Hpx

<sup>a</sup>Confidence errors (95%; 2 $\sigma$ ) associated with  $\delta$ -values include external reproducibility of a running standard and potential instrumental mass bias in an indium mount in which RA-QD02-0010 was embedded.



Oxygen three-isotope diagram of the Itokawa particle RA-QD02-0010 (Nakashima et al. 2013, EPSL). ECL and TF represent the equilibrium chondrite line (Clayton et al. 1991, GCA) and terrestrial fractionation line. Abbreviations: Ol, olivine; Pl, plagioclase; Hpx, high-Ca pyroxene.