

Electronic Supplementary Information (ESI)

Submitted to Journal of Analytical Atomic Spectrometry

TOF mass spectra of zircon M257 measured by VUV laser desorption ionization

Feng Liu^a, Haoyu Shi^a, Kui Liang^a, Jia Wang^a, Tao Long^b, Zhanping Li^c and
Yuxiang Mo^{a,*}

*^aDepartment of Physics and State Key Laboratory of Low-Dimensional Quantum
Physics, Tsinghua University, Beijing 100084, China*

*^bInstitute of Geology, Chinese Academy of Geological Sciences, and Beijing SHRIMP Center,
Beijing, China*

*^cDepartment of Chemistry, Beijing Key Laboratory of Microanalytical Methods and
Instrumentation, Tsinghua University, Beijing, 100084, China*

* Corresponding author: yym@mails.tsinghua.edu.cn

Figure A1. Left panel shows an AFM image of a Qinghu zircon grain after VUV laser ablation. The VUV laser scanned $30 \times 30 \mu\text{m}^2$ (the red rectangle) with $1 \mu\text{m}$ step along both the x and y directions in total $30 \times 30 \times 50$ laser pulses. Right panel shows two depth profiles along the two white lines in the left panel. Two trenches (indicated as blue dashed lines) are caused by the U-turns of the scanning, which took 0.2-0.5 s, hence more VUV pulses. The average depth was $22 \pm 10 \text{ nm}$, or $\sim 0.5 \text{ nm/pulse}$ measured from the two depth profiles. Qinghu is a famous reference zircon (see Ref. 32).

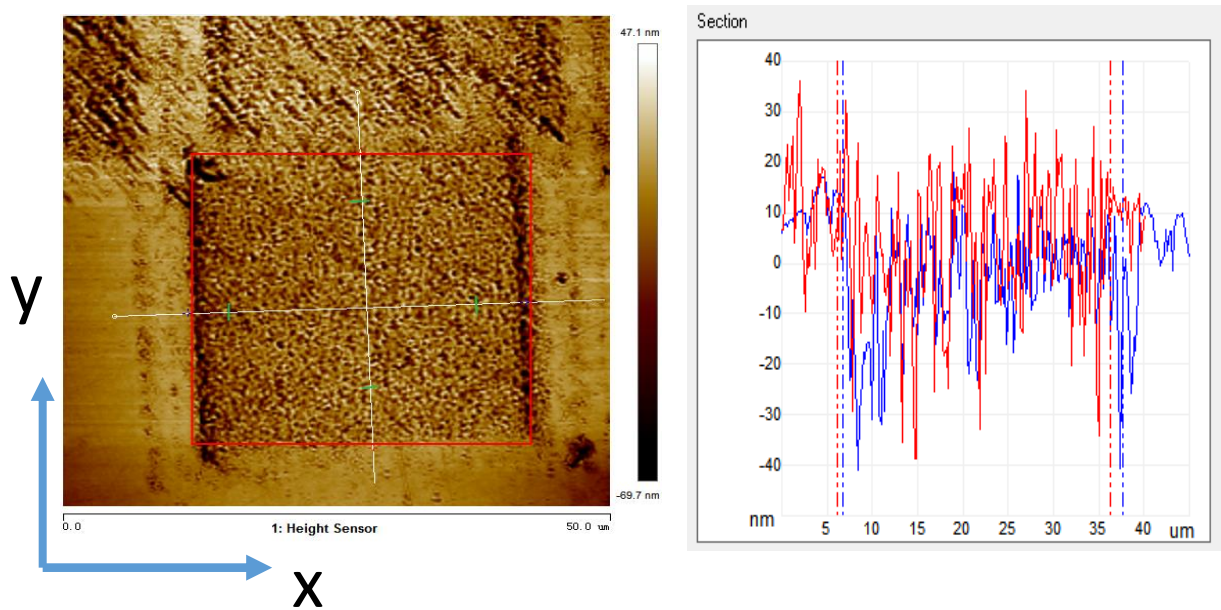


Figure S2. The left panel shows one crater with 1000 laser pulses (50 seconds). The right panel shows the two depth profiles along the white lines in the left panel. The depth of the crater is ~ 500 nm with diameter (Half height full width) 500 nm. The average depth is ~ 0.5 nm/pulse.

