

Multi-element analysis of ceramic and polymeric samples by ArF laser excited atomic fluorescence of ablated plumes

Electronic Supplementary Information

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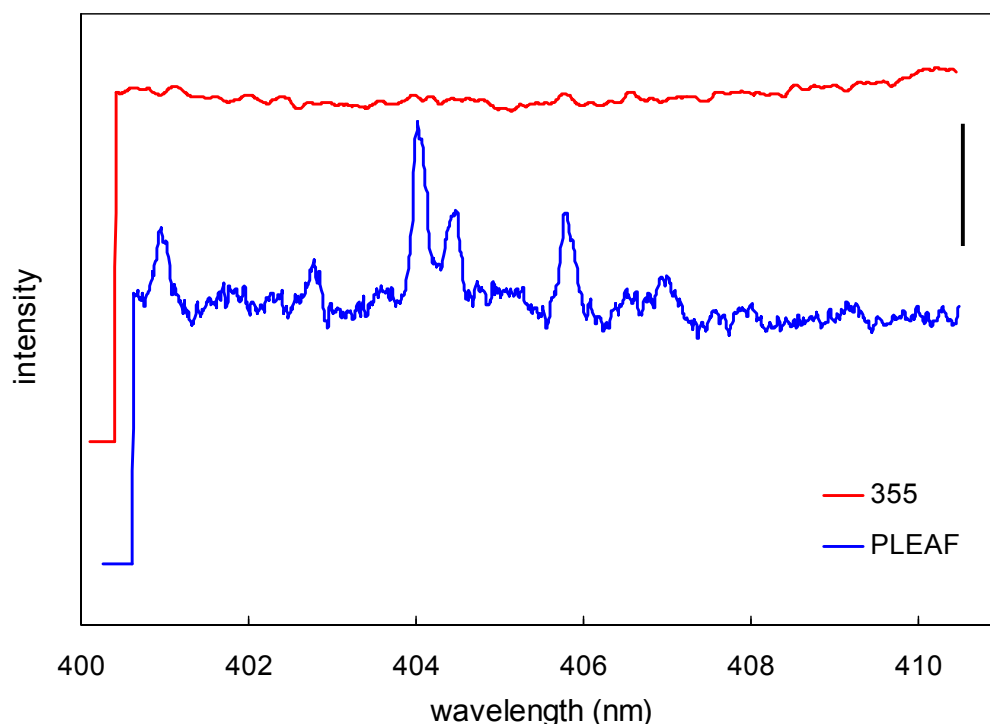


Fig. E1. PLEAF analysis of lead nitrate solution applied on PET film and let dried. The spectrum displayed was the average of 200 events. Leading pixels of traces were zeroed to indicate baseline. Both spectra offset vertically for clarity. Vertical scale bar was 1,000 CCD cts. Experimental conditions for PLEAF: 355-nm pulse at 1.9 J cm^{-2} over a $285\text{-}\mu\text{m}$ dia. spot, followed $9 \mu\text{s}$ later by the 193-nm pulse at 470 mJ cm^{-2} . ICCD was gated on 25 ns after the ArF pulse. For 355-nm LIBS, ICCD was gated on 100 ns after the 355-nm pulse. $[\text{Pb}]$ was about $6.1 \times 10^{13} \text{ atoms cm}^{-2}$.

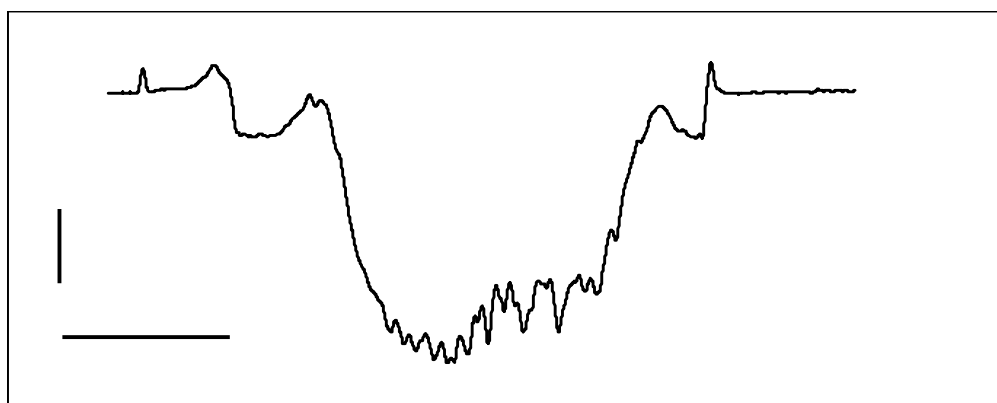


Fig. E2. ITO-PEN crater profile after two ablation shots. The first shot created a crater of 140 μm dia. and 120 nm deep. The second shot created a crater of 90 μm dia. The horizontal scale bar was 50 μm . The vertical scale bar was 200 nm.

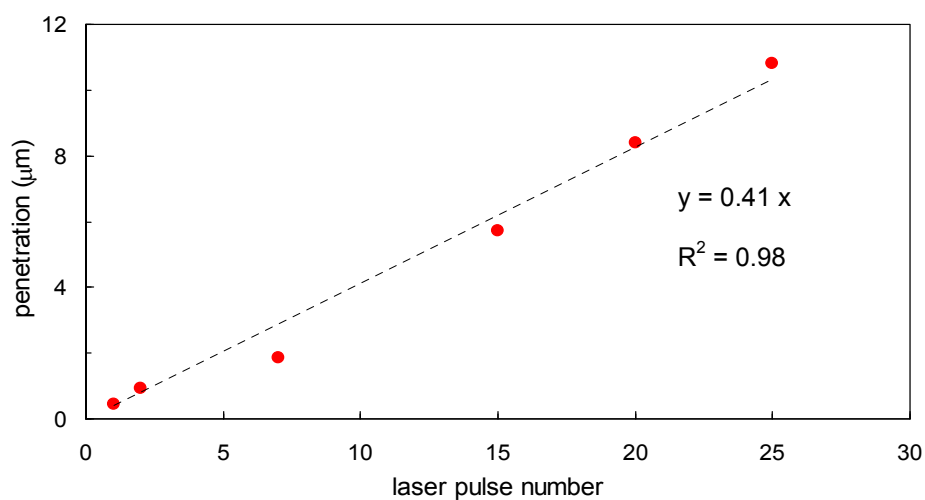


Fig. E3. 355-nm pulsed laser ablation of PEN. Shown was penetration versus pulse number. Penetration was measured from the ITO-PEN interface. Linear regression parameters were also shown. Experimental conditions: 355-nm pulse at 260 mJ cm^{-2} over 140- μm dia. spot.

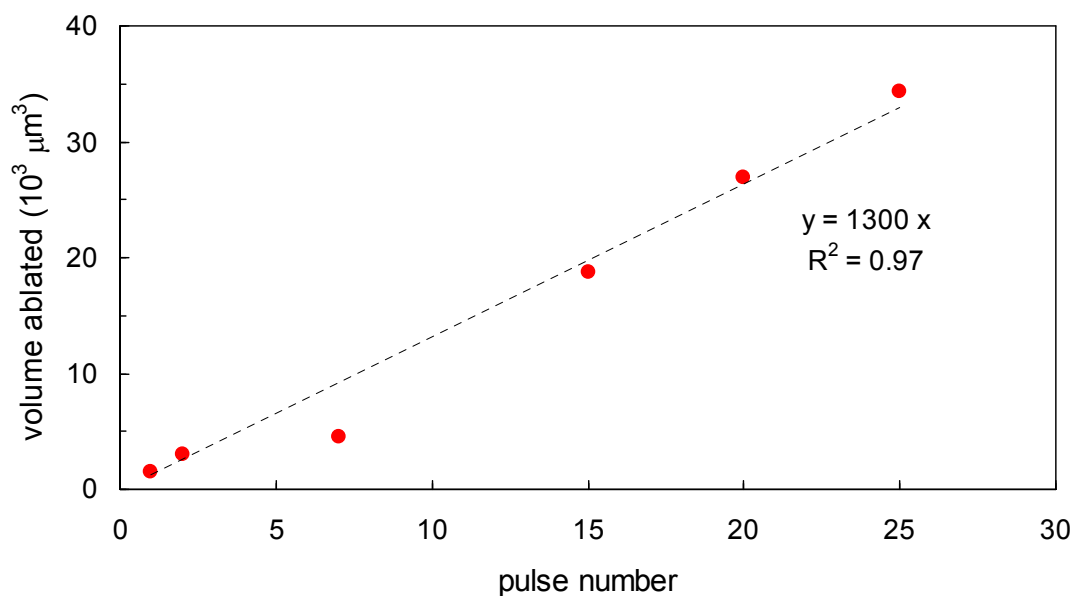


Fig. E4. 355-nm pulsed laser ablation of PEN. Shown was ablated volume versus pulse number. Ablated volume was determined from crater profiles. Linear regression parameters were also shown. Experimental conditions: 355-nm pulse at 260 mJ cm^{-2} over $140\text{-}\mu\text{m}$ dia. spot.

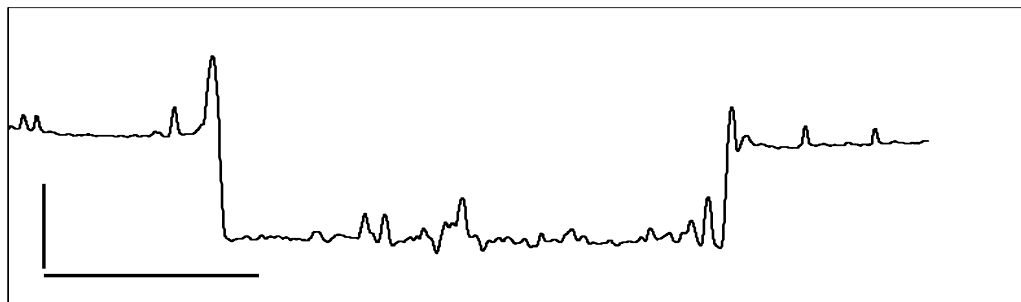


Fig. E5. ITO-PEN crater profile after one ablation shots. The horizontal scale bar was $50 \mu\text{m}$. The vertical scale bar was 100 nm .

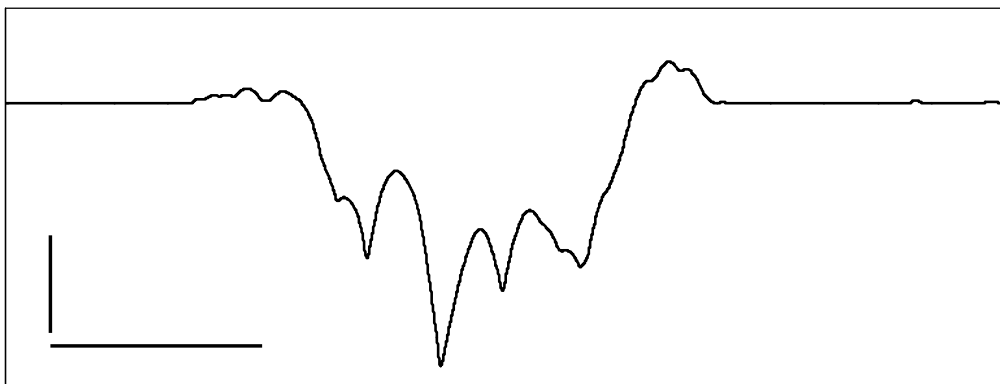


Fig. E6. ITO-PEN crater profile after six ablation shots. The horizontal scale bar was 50 μm . The vertical scale bar was 2 μm .

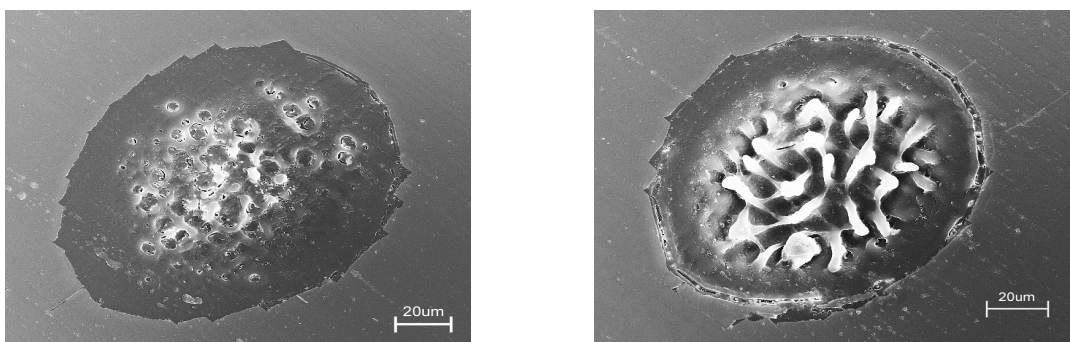


Fig. E7. SEM images of craters on ITO-PEN. Left: After five shots. Right: Another spot after 13 shots. Features were suggestive of melting and resolidification of the polymer substrate.