

Virtual recovery of text from an ancient inscribed lead scroll using neutron tomography

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The artefact in study is an ancient lead scroll with an inscriptions inside, however, its purpose and origin are unknown. Many ancient cultures used metal tablets as a writing media for various purposes - prayers of protection, ballots, contracts, and curses for example. Once inscribed, these tablets were rolled or folded and placed in a variety of places determined by their purpose ie. cisterns and wells for curses, or burial sites for protection. Lead and tin were typically used for curses and ill-wishes, however there have been examples of official documents and private letters found on lead tablets also.

These tablets are often found to be corroded and fragile as a result of their burial environments, which can make it difficult to determine the nature of their inscriptions. Physically unrolling these delicate ancient documents can result in fragmentation, crumbling, and overall permanent damage and loss of text. Thus using non-destructive techniques are the best way forward for the study of these fragile glimpses into the past.

Synchrotron X-ray CT was unable to penetrate the ~2cm thick lead scroll, however, neutron tomography successfully imaged through the entirety of the scroll. The results were unprecedented, revealing four individual tablets rolled up in the scroll. Using VG Studio the length of each lead sheet and thickness of each lamellae can be measured. Additionally virtual unrolling of the sheets and extraction of text has begun, also using VG Studio.

Level of Expertise

Student

Do you wish to take part in the poster slam

Yes

Travel Funding

No

Speakers Gender

Female

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