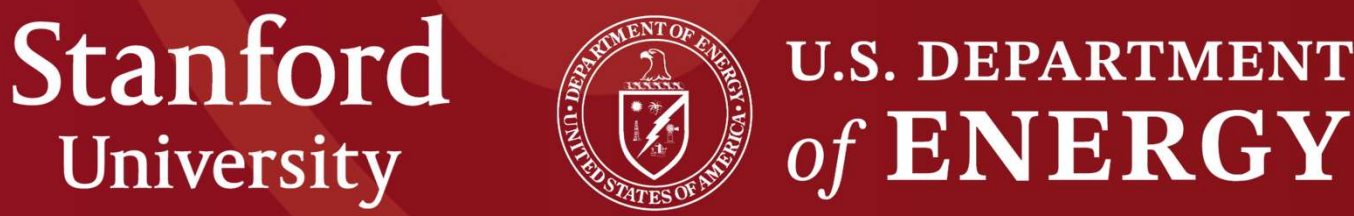


# SLAC Status Report 2026

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The main source of work for the alignment engineering group since 2024 has been the construction of LCLS-II-HE. Here is a list of the highlights:

- Completed the installation and alignment of 20 additional Cryo-modules and Cryo-distribution hardware. Starting with a new alignment network, incoming inspections and alignment.
- Finished the fiducialization, installation and alignment of the 30 new or upgraded soft X-ray undulators.
- Ongoing fiducialized and alignment of experimental hutches

## METROLOGY DEPARTMENT

- Updated our instrument pool with the addition of a Leica AT500, investigated how to use it, see presentation by Witold Niewiem (Friday morning)
- Updated our adjustment software to Python, see poster by Witold Niewiem



- XPP: New Network, the whole hutch has rotated, confirmation with burn through paper measurements using triangulation measurements. Fiducialization and alignment of components.
- TMX: New Reference Network, Fiducialization and alignment of components on the beamline.
- Tunnel Network: Measurement of 500m of alignment network from the Undulator Hall to the Far Experimental Hall. Changes of up to 0.3mm/year.

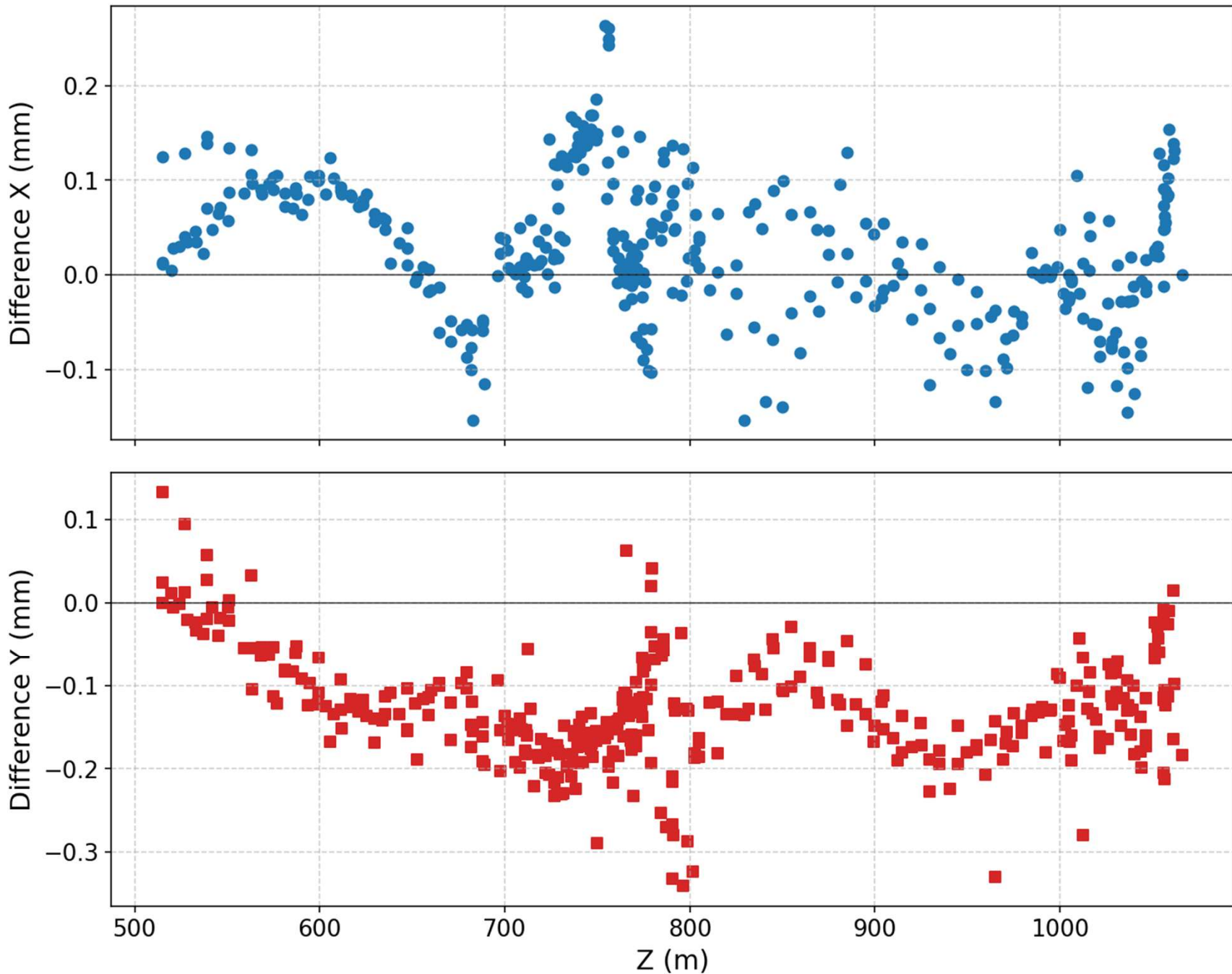
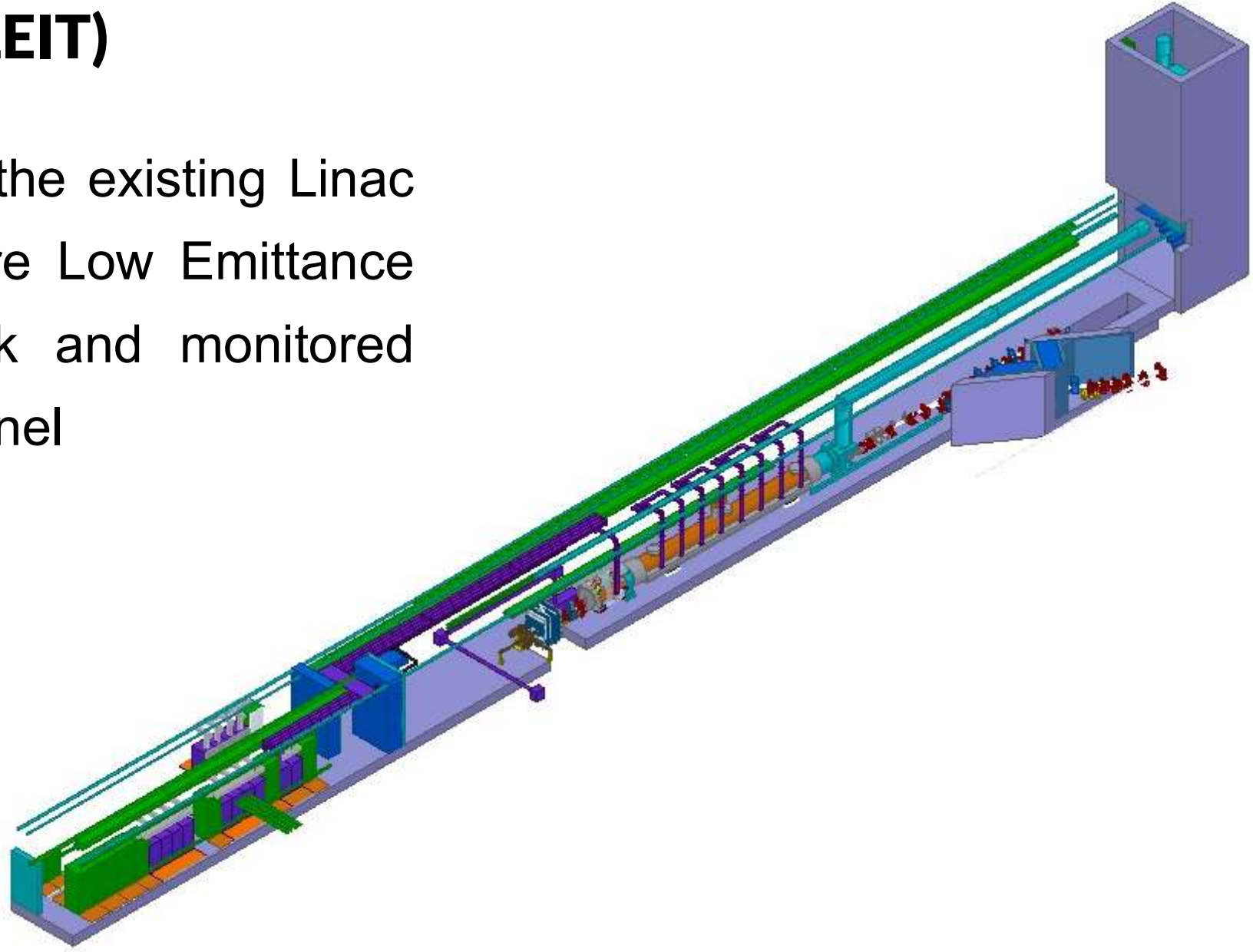


Figure: Horizontal and Vertical coordinate changes of monuments between Sept 2026 and Sept 2025 from undulator Hall (left side) to Far Experimental Hall (right side).

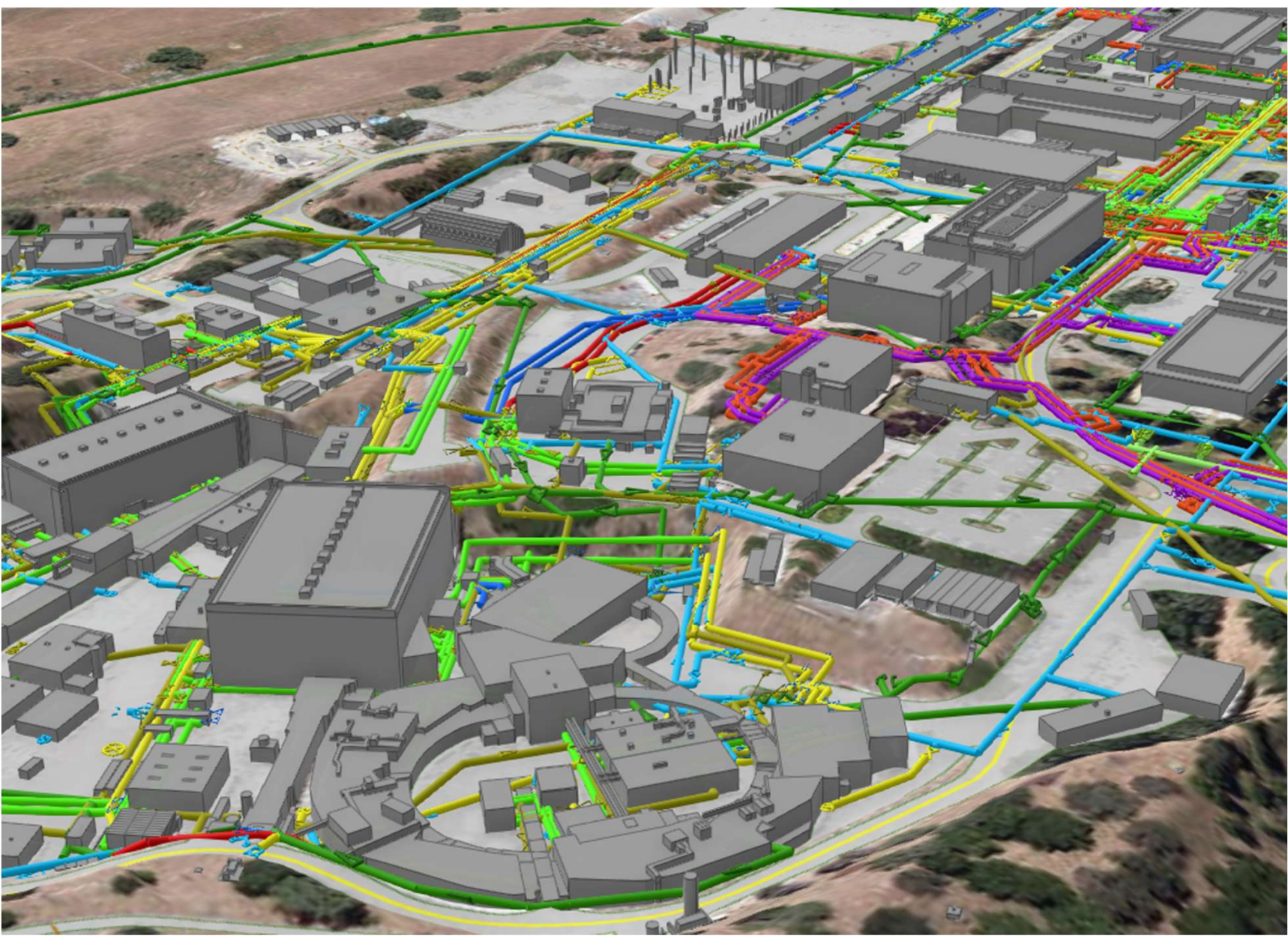
## LCLS-II-HE LOW EMITTANCE INJECTOR TUNNEL (LEIT)

A new 100m long tunnel that runs parallel to the existing Linac on its upstream end that will house the future Low Emittance Injector we established a reference network and monitored vibration and tunnel deformations of the old tunnel



## GIS

Over the past two years, SLAC's Metrology Department has continued to operate and modernize approximately 40 GIS web applications and services on Esri ArcGIS Enterprise. The Building and Space Management GIS combines CAD-derived floor-plan geometry with Oracle building records, supported by nightly data refresh and publishing. Its automated nightly backups include integrity checks, alerts and retention, with documented recovery procedures and further restore automation under development. Other activities include a documented enterprise-server rebuild, automated quarterly maintenance of FIMS floor-plan reports, environmental-application migrations to Experience Builder, refreshed pre-incident symbology, and continued 3D utility and Revit/BIM development. Together with time-enabled site-activity mapping, these capabilities support facilities and space management, environmental compliance, emergency planning and site operations.



## SSRL

### Stanford Synchrotron Radiation Light Source

During the 2025 and 2026 summer down time the control network as well as all the magnets were mapped and any outliers were aligned. This allows us to keep our network current and adjust any part of the ring that may have moved in the preceding year, usually about 10% of the ring. During these downtimes we also mapped the booster ring and supported the exchange of the vacuum chambers.

## ACKNOWLEDGEMENTS

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