

## International Workshop on Accelerator Alignment



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# THE STORAGE RING CONTROL NETWORK OF NSLS-II

NSLS-II requires  $\pm 100$  micron alignment precision to adjacent girders which is mainly depending on the precision of survey control network. The design is determined to establish a laser tracker and digital level based control network, but it was changed to be measured by AT401 only later.

Simulation shows that an estimated accuracy of  $\sim 50$  micron can be achieved. The analysis of actual measurement and the application of the control network to align girders confirm the accuracy.

A comparison between Spatial Analyzer and Star\*net shows very similar estimate of instrument performance and computed coordinates which both verify the applicability of Spatial Analyzer in control network adjustment.

## Summary

The substitution of instrument from traditional laser tracker and digital level to AT401 is a success in NSLS-II project. It shows improved measurement efficiency and precision. The local accuracy is better than  $\pm 0.050$  mm and global accuracy is better than  $\pm 1$  mm.

Spatial Analyzer is convenient and reliable to be used for the computation of control network. It has comparable result with respect to traditional software.

The combination of AT401 and Spatial Analyzer has promising prospect in accelerator control network survey.

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