

## 上海光源的一级平面控制网

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**摘要** 国家重大科学工程上海光源对加速器元件提出了亚毫米量级的超高定位精度要求。将一级平面控制网用于确定建筑和设备的相对位置关系, 并为下级控制网提供高精度的基准数据。控制网的设计过程受建筑、设备的制约, 测量过程中又面临不易观测、不利因素多等困难。经过不断优化设计和施测, 最终在周长400 m的大尺寸空间内取得了0.3 mm的超高精度。通过对3次观测结果的比较, 发现了地基随季节的周期性变化现象。

**关键词** [上海光源](#) [平面控制网](#) [全站仪](#) [投点仪](#)

分类号

## Global Horizontal Control Network of Shanghai Synchrotron Radiation Facility

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**Abstract** As a national big scientific engineering, Shanghai Synchrotron Radiation Facility (SSRF) has rigid requirement to the components with sub-millimeter accuracy. In the process of survey and positioning global control network is a connecting link, which determines the position relationship between building and accelerator devices, and provides high accuracy datum to local control network. Within the designing process, building and devices are very restrict. While among observation, it's hard to be observed and abound with disadvantages. With continuous optimization and careful operation, super-high accuracy of 0.3 mm within 400 m circumference was achieved and slab's periodic movement could be seen through 3 times measurement.

**Key words** [Shanghai Synchrotron Radiation Facility](#) [horizontal control network](#) [total station](#) [plummet](#)

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