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# Research on the stability of BPM independent support system

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Beam orbit stability is the key indicators for current synchrotron light sources, which has a direct effect upon accelerator performance as well as quality and stability of synchrotron light in experimental stations. This project aims to realize the stability requirements of independent support system in limited narrow space for fourth-generation light source. The objective is to develop a novel structure of super invar alloy to applied to enhance the stabilities of the BPM independent support system. By establishing a theorical model and simulation analysis, vibration stability under the environment of complicated excitations is carried out. Furthermore, thermal stability under the environment of multi-physical fields are conducted. Based on the requirements of project application, we have developed a prototype with the eigen frequency surpassing 70Hz while mechanical stability better than 90nm through solving key technical problems and conducting experimental test.

## Footnotes

## Funding Agency

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