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## **Design of a permanent quadrupole magnet with adjustable magnetic field gradient**

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As compared to traditional magnets, permanent magnets can effectively reduce energy consumption and eliminate the impact of current ripple and the wa-ter cooling system on beam current. The use of permanent magnets in accelerators has become a new trend as permanent magnet technology has advanced. In HALF, we have designed a permanent magnet based on the quadrupole magnet, and the central magnetic field strength of the permanent magnet can be adjusted, indicating that single or multiple permanent magnets can be developed to replace different sizes of quadru-pole magnets in accelerators, greatly improving systematization. The magnet's mechanical design has been finalized, and the prototype of the permanent magnet will be manufactured and tested soon.

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### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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