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## Development of the first permanent bending magnet at BESSY II

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Permanent Magnet (PM) based bending magnets are state-of-the-art concepts to gain stable beam operation and to reduce the power consumption of the magnetic system in an accelerator. This is even more true in injector and beam transport beamlines with fixed beam parameters and low repetition rates. An example is the B2PT magnet in the BESSYII transfer beamline between booster and storage ring. It is the last dipole magnet for the final 7.8 deg bending into septum. This one meter long, compact, high current dipole will be replaced by three 300mm long Variable Permanent Hybrid Magnets. They combine a PM driven strong and stable magnetic field with a small field variability via compact corrector coils. With this new magnet we can reduce fringe fields and vibrations next to stored beam, as well as the total power consumption of the injector by almost 30 kW. In this paper, the design and construction process of the new B2PT magnet will be presented.

### Funding Agency

### Footnotes

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Yes

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