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## In-room imaging

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### In-room imaging

The potential of particle therapy to precisely tailor the dose distribution around the target volume needs to account for the intrinsic sensitivity to uncertainties in dose deposition. These peculiar features motivate the use of image guided methods to consistently verify the accuracy in dose delivery. Dedicated in-room imaging methods are therefore required, in order to reduce the effects of uncertainties. The scenario is complicated by the lack of standardized layouts of treatment bunkers, which implies the relatively increased use of custom solutions. Imaging can also be applied to verify the actual delivered dose, representing a valuable opportunity to validate specific protocols and visualize the efficacy of the intended treatment. In this contribution, challenges and opportunities of in-room imaging for particle therapy are overviewed, with a clear focus on research perspectives in the implementation of adaptive treatment protocols.

### Summary

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