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## Differential equation model of tune ripple effect on beam spill ripple in RFKO slow extraction

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Beam uniformity is an important factor that must be considered in slow extraction optimization, and the tune ripple caused by the power supply ripple is an important factor that causes beam uniformity to deteriorate. In this study, based on the beam excitation concept for two regions (extraction and diffusion regions), a differential equation of beam spill under the influence of a mono frequency tune ripple was established. By solving and analysing the differential equation, several conclusions were obtained and verified by simulation.

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### Footnotes

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

Yes

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