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Study on spill quality and transit times for slow extraction from SIS18

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Slowly extracted beams from a synchrotron have temporal fluctuations, the so-called spill micro structure. The reason is related to power supply ripples that act on the quadrupole magnets, leading to unintended tune fluctuations during extraction. Related simulations regarding the dependency of spill quality on the power supply ripples are executed with varying excitation levels of the sinusoidal ripples and bandwidth-limited white noise. In addition, transit time spread is simulated, a few simulation approaches are proposed, and related data analysis procedures and preliminary results are described.

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Footnotes

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Yes

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