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Larmor diffraction -status and new concepts

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We review the current status of Larmor diffraction (LD) at TRISP at the MLZ. The current setup with precession fields both up- and downstream the sample has a good resolution and is not sensitive to the crystal size or beam divergence. The disadvantage is that it is not possible to work with spin-depolarizing ferromagnetic samples or with magnetic fields at the sample. There are two proposals for a LD configuration using precession fields only along the incident beam upstream the sample, such that spin-depolarization at the sample is not harmful. The first of these new concepts is the single-arm LD proposed by Rekveldt and van Well, the second is a spin modulation technique using one radio-frequency spin-flipper (Habicht, unpublished). Both new concepts loose resolution in comparison to the classical LD. We will discuss and compare these new LD methods.

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