NSLS-II SRX Beamline Docs Documentation

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These pages are the documentation of the SRX beamline (5-ID-1) at the NSLS-II.

CHAPTER

ONE

SRX (5-ID-1) BEAMLINE DOCUMENTATION

1.1 Contents

1.1.1 SRX KB mirrors

Introduction

There are two sets of KB mirrors in the SRX endstation, one high-flux pair and one high-resolution pair.

High-flux

Mir:2 - High-flux VFM

Mechanics

- Weak link flexures for all translations
- Vertical translation system has four stepper motors, so is overconstrained. Extra axis is twist, and needs to be maintained at zero.
- Horizontal translation for stripe selection done by two SmarAct actuators. These actuators have limited ability to yaw, and as a result can get stuck.
- Longitudinal translation by single SmarAct actuator.

Motion control

- Delta Tau coordinate system implemented for Mir:2 vertical movements: vertical translation, pitch, roll, twist.
- Twist should be maintained at zero.
- A PLC monitors the twist and deactivates the vertical motors if the calculated twist exceeds a specified value.

Mir:3 - High-flux HFM

Mechanics

Motion control

Motion axes

High-resolution

Mir:4 - High-resolution VFM

Mechanics

- Weak link flexures for all translations
- Vertical translation system has two stepper motors, so is not overconstrained.

Motion control

Mir:5 - High-resolution HFM

Mechanics

Motion control

Motion axes

CHAPTER

TWO

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