
NIRSPEC

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NIRSPEC Cryomechanics Design Note 09.00 Slit Wheel

Introduction

The slit wheel, like the filter wheel, will be a direct descendant of the wheels used in Gemini and the Navy camera. In other words, it will be edge driven via a worm gear from a stepper motor. The motor will be cryogenically prepared with a dry lubricant in the bearings. The slit substrates will mount in the wheel like filters, except that they have to have a slight tilt in order to reflect the light that doesn't go down the slit back to the slit viewing camera.

What next?

The main work going on at the moment is in research into anti-backlash schemes. This is more applicable to the other mechanisms than to the filter wheel, but may be applied to this mechanism also. The size has been fixed so that it is the same as the filter wheel. The wheel enclosure and its mount to the optical plate also have to be defined. We also have to make a final selection of the filter substrates so that we get a sufficiently smooth flat surface around the slits.

The most urgent thing to be done is to get in touch with vendors and decide who is to make them and how. We also need a design for an adjustable mount in order that we can bring the images from the different substrates into coincidence after we rotate the wheel from one to another.