Jupyter Notebook to determine whether a reflection in the thin film setup for a given crystal system is accessible in grazing Exit scattering geometry

In grazing exit geometry, the x-ray beam is incident at an angle close to the film normal and exits the film at grazing incidence. Usually, this is to allow a pump pulse collinear to the x-ray beam to impinge on the film at close to normal incidence.

This jupyter notebook checks whether for a given crystal system and bragg reflection, that Bragg reflection is accessible. Accessible in this context means that the incident and outgoing wavevectors are above the film surface. The jupyter notebook also calculates the Euler angles for the reflection in grazing exit for a standard 4 circle goniometer.

It does these tasks using the python module x-ray utils.