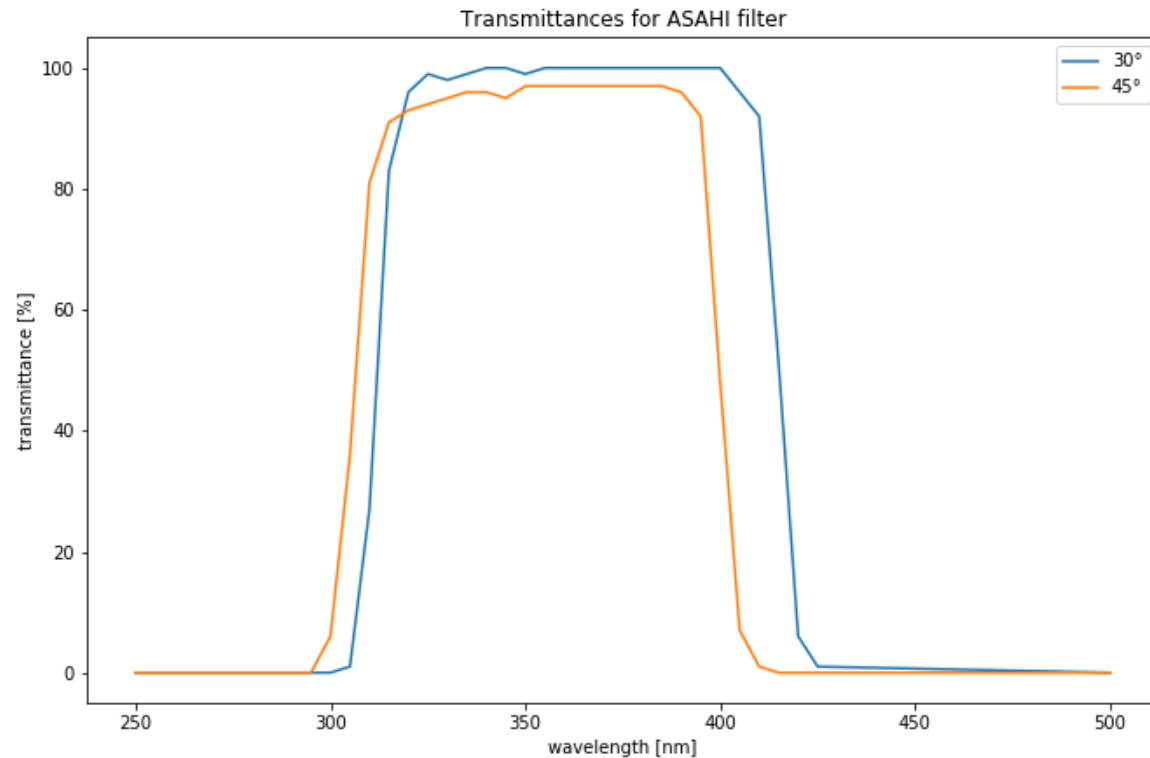


Dichroic filter

Simulation of dichroic surfaces in GEANT4

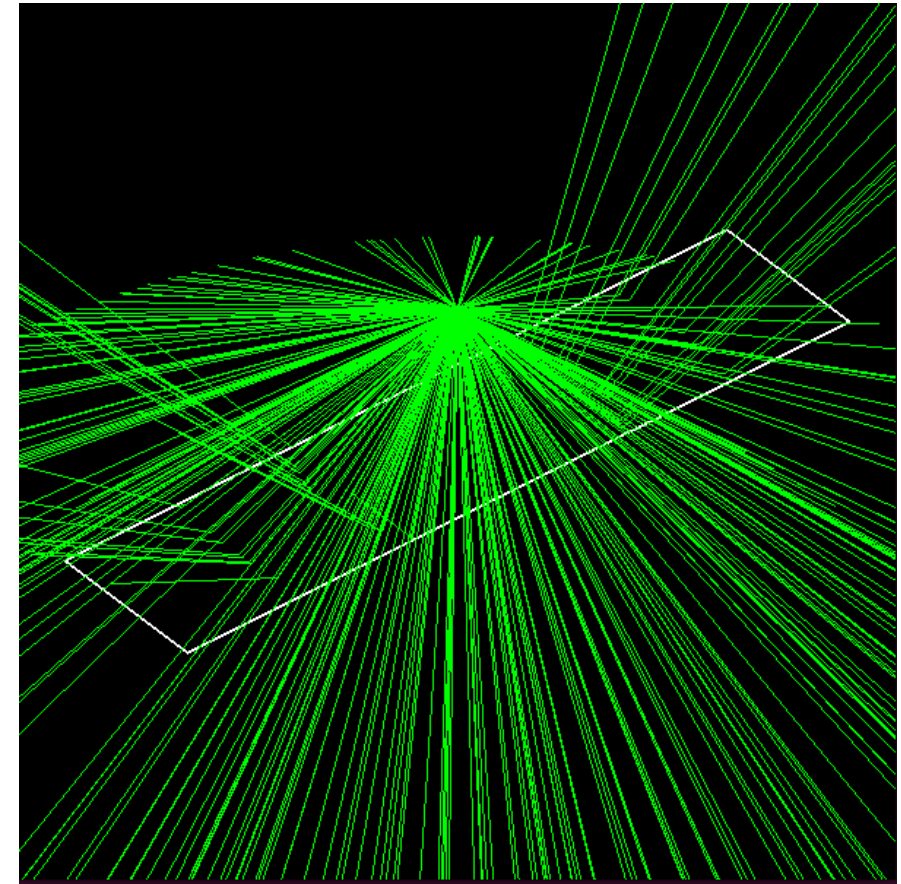
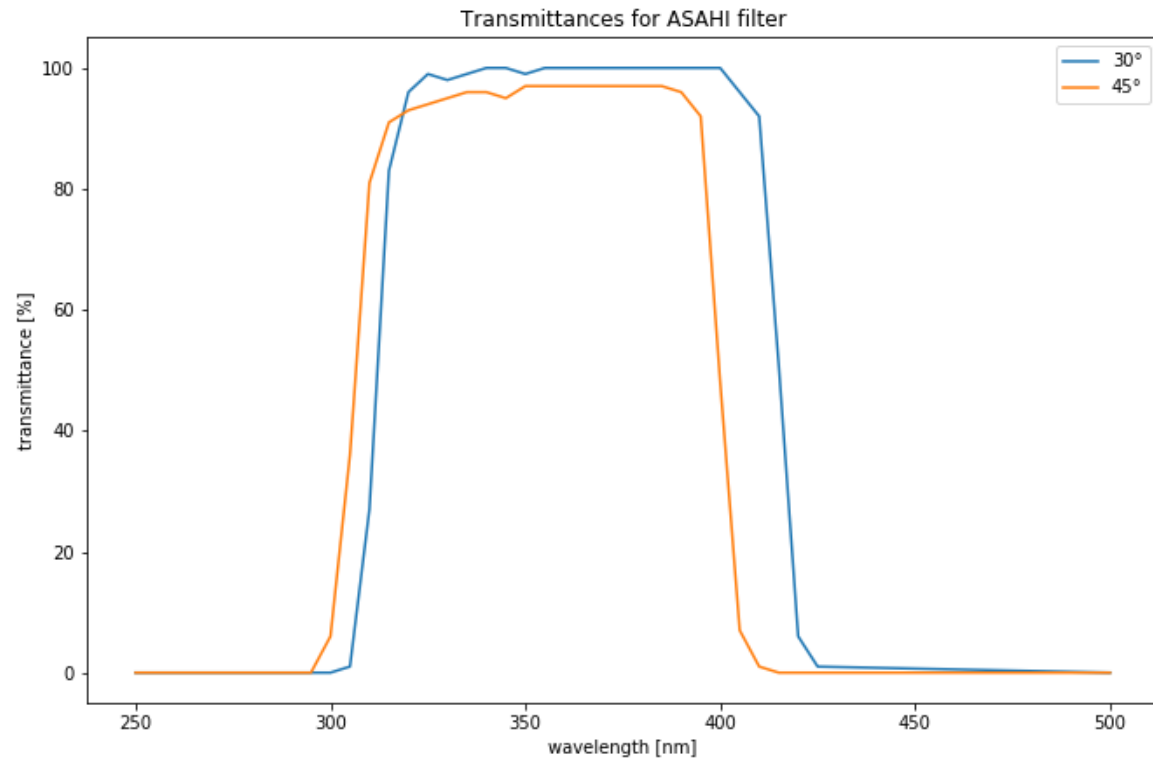
Example of dichroic filter: model from ASAHI

- Transmittances known for 30° and 45°
- Aim: Simulate this behaviour in GEANT4, later implement dichroic filter into homemade ARAPUCA simulation



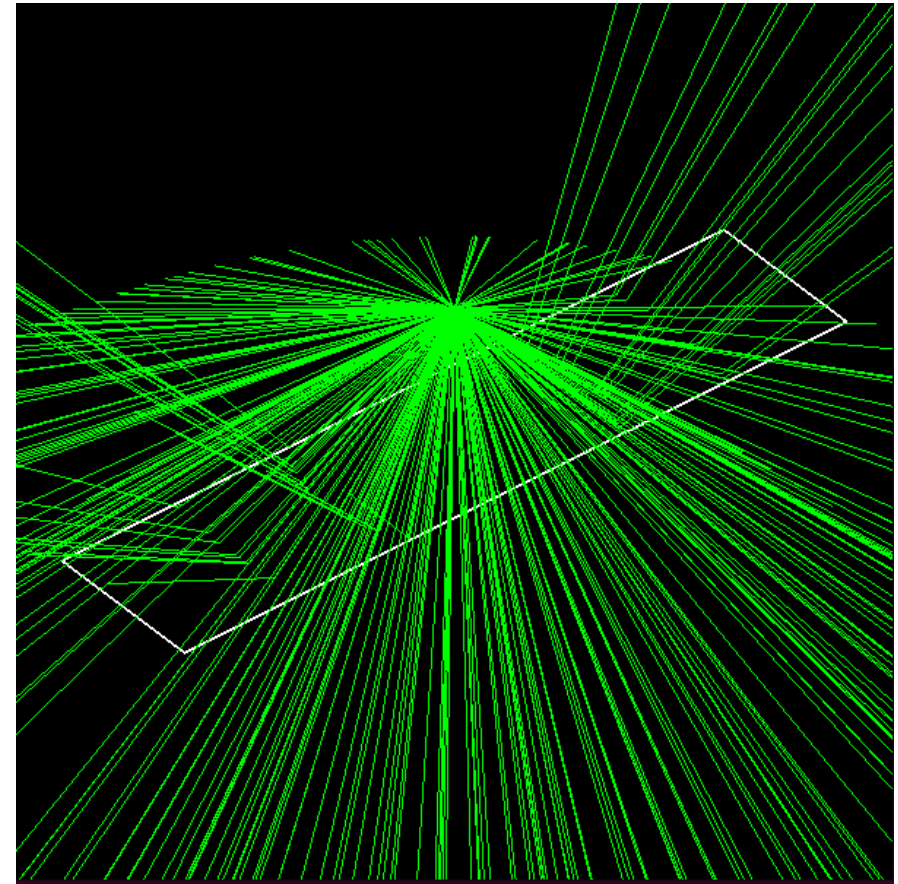
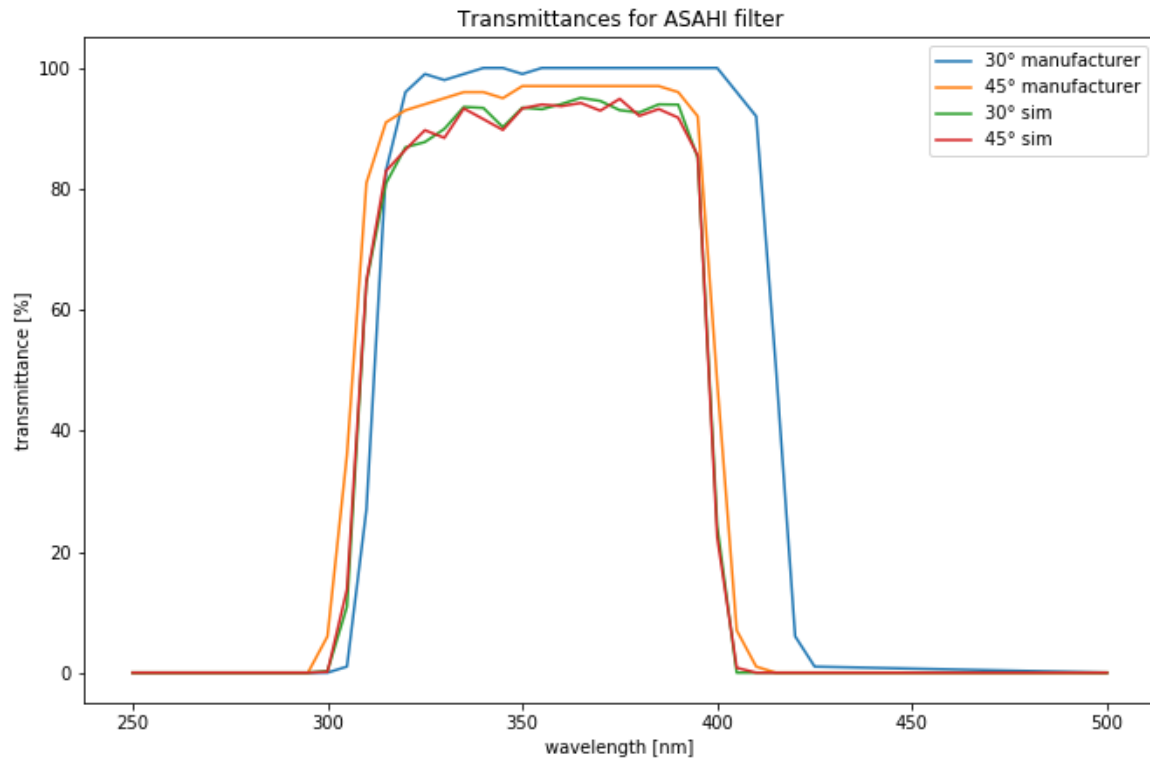
Dichroic filter in GEANT4

- Transmittances need to be defined as values related to both an angle of incidence and wavelength of the incoming photon
- For simplicity purposes, photon initial energies and momenta were defined exactly in accordance with the given parameters for the dichroic filter:
 - Wavelengths: [250, 295, 300, 305, ..., 425, 500] (29 entries)
 - Angles: [30, 45]



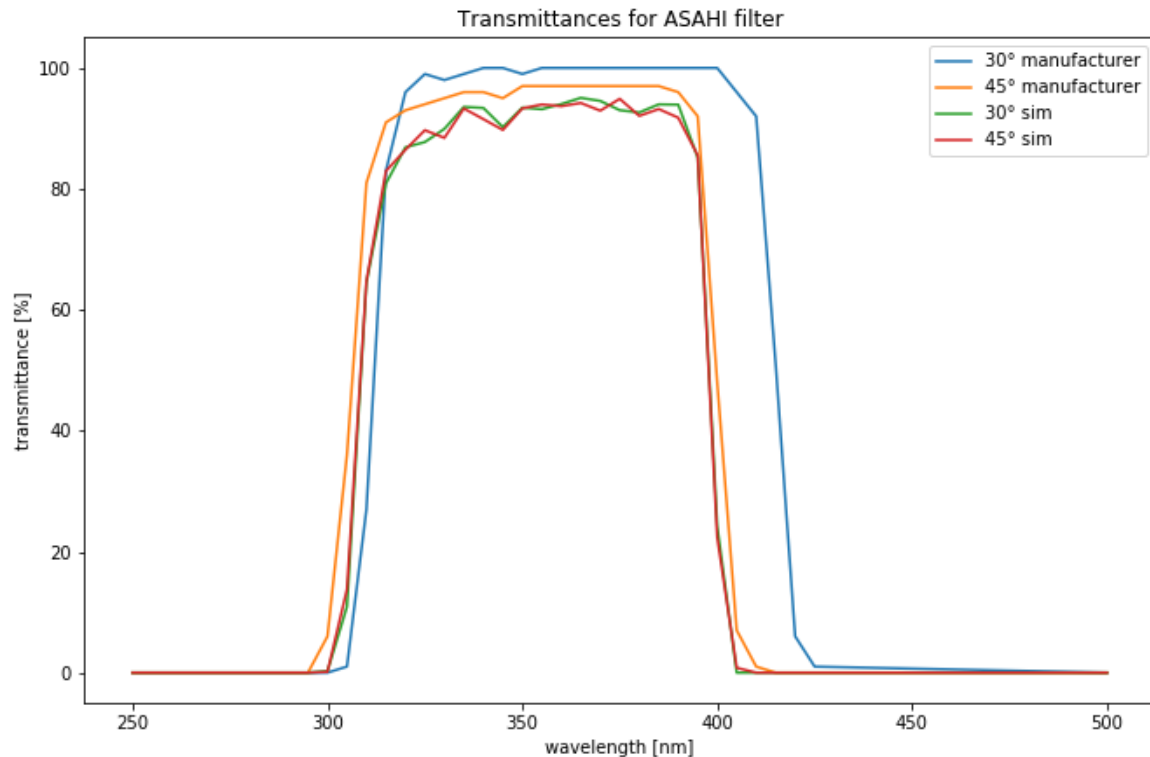
Dichroic filter in GEANT4

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Dichroic filter in GEANT4

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- Transmittance for 45° close to manufacturer's data
- Transmittance for 30° needs further investigation
- Further steps: Take more measurements in lab to acquire more data about angular dependence of photon incidence