

Exercise 6

Inversion of sunspot penumbral profiles near PIL

Hinode/SP observations with SNR~1000, no telluric lines, two lines Fe I 630.1 and 630.2 nm.

Strong signals, but Stokes V profile with three lobes...

1. What kind of model would you use to invert them?
2. One-component model with opposite magnetic along LOS? Two-component model?
3. Try both!

Inversion of these profiles will not be easy. Do your best!

Give more weight to Stokes V to force better fits. Increase weight with cycle.

Use instrumental PSF and macroturbulence at the same time.

If everything fails, use superpowers....