

Exercise 1

Spectral synthesis and inversion of synthetic profiles

- Use HSRA model to **synthesize Stokes profiles** with
 1. constant B, inclination and v_{LOS} (e.g., 1 kG, 60°, 2 km/s)
 2. constant v_{LOS} , gradients of B and inclination
 3. gradients of B, inclination and v_{LOS}
- Invert profiles from (3.), starting from initial guess model with flat stratifications of B, v_{LOS} , and inclination (modify hsra11.mod)
 - 1 node in B, v_{LOS} , inclination
 - 2 nodes in B, and v_{LOS} inclination

```
IDL> read_model,'hsra11.mod',logtau,T,pe,mic,B,V_LOS,gamma,phi,mac,filling,stray
IDL> B=1000+400.*logtau      & v=2.e5+0.*logtau      & gamma=60.+ 0.*logtau

IDL> write_model,'model1.mod',logtau,T,pe,mic,B,V_LOS,gamma,phi,mac,filling,stray
```