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, 60º, 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

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IDL> read_model,'hsra11.mod',logtau,T,pe,mic,B,V_LOS,gamma,phi,z,pg,rho,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,z,pg,rho,mac,filling,stray
```