

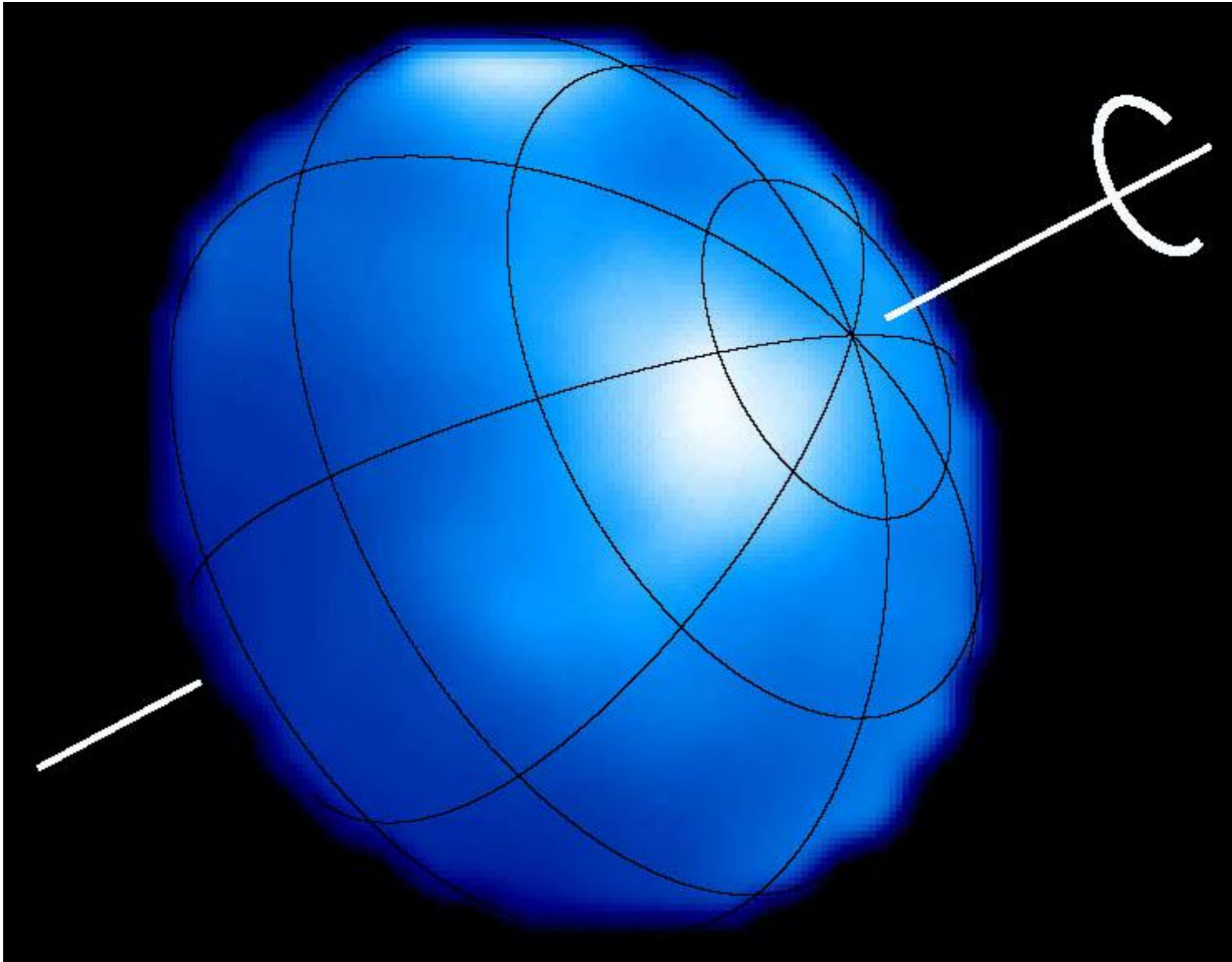
***Modeling Rotating
Geometrically
Distorted Stars with
Inhomogeneous
Surface Features***

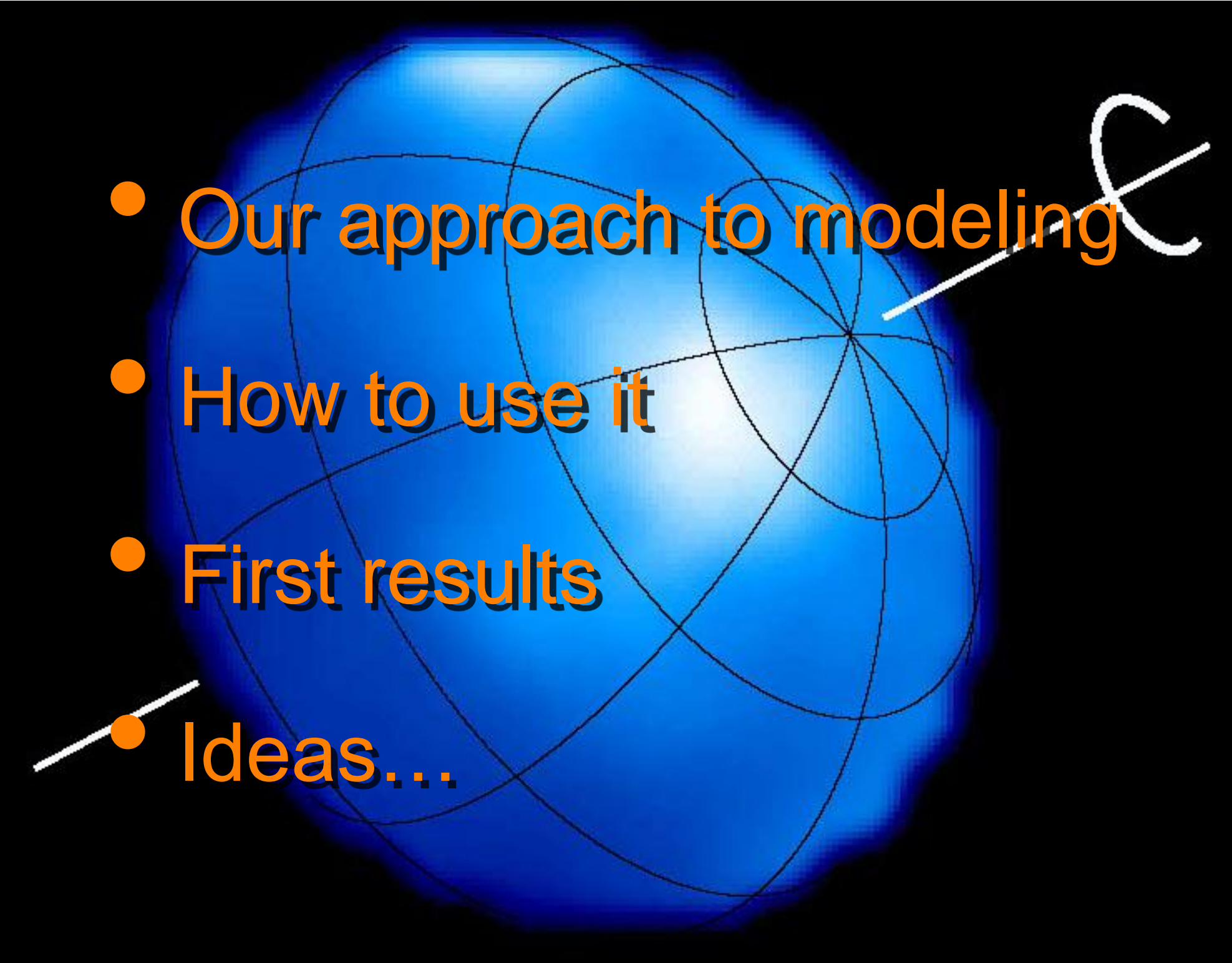
Thomas Dall, ESO
with Luca Sbordone, MPA/Heidelberg

(Modeling Rotating Geometrically Distorted Stars with Inhomogeneous Surface Features)

***Fast, Furious, ...
and Flat!***

Thomas Dall, ESO
with Luca Sbordone, MPA/Heidelberg



- 
- Our approach to modeling
 - How to use it
 - First results
 - Ideas....

$$A_{el}(\vartheta, \varphi)$$

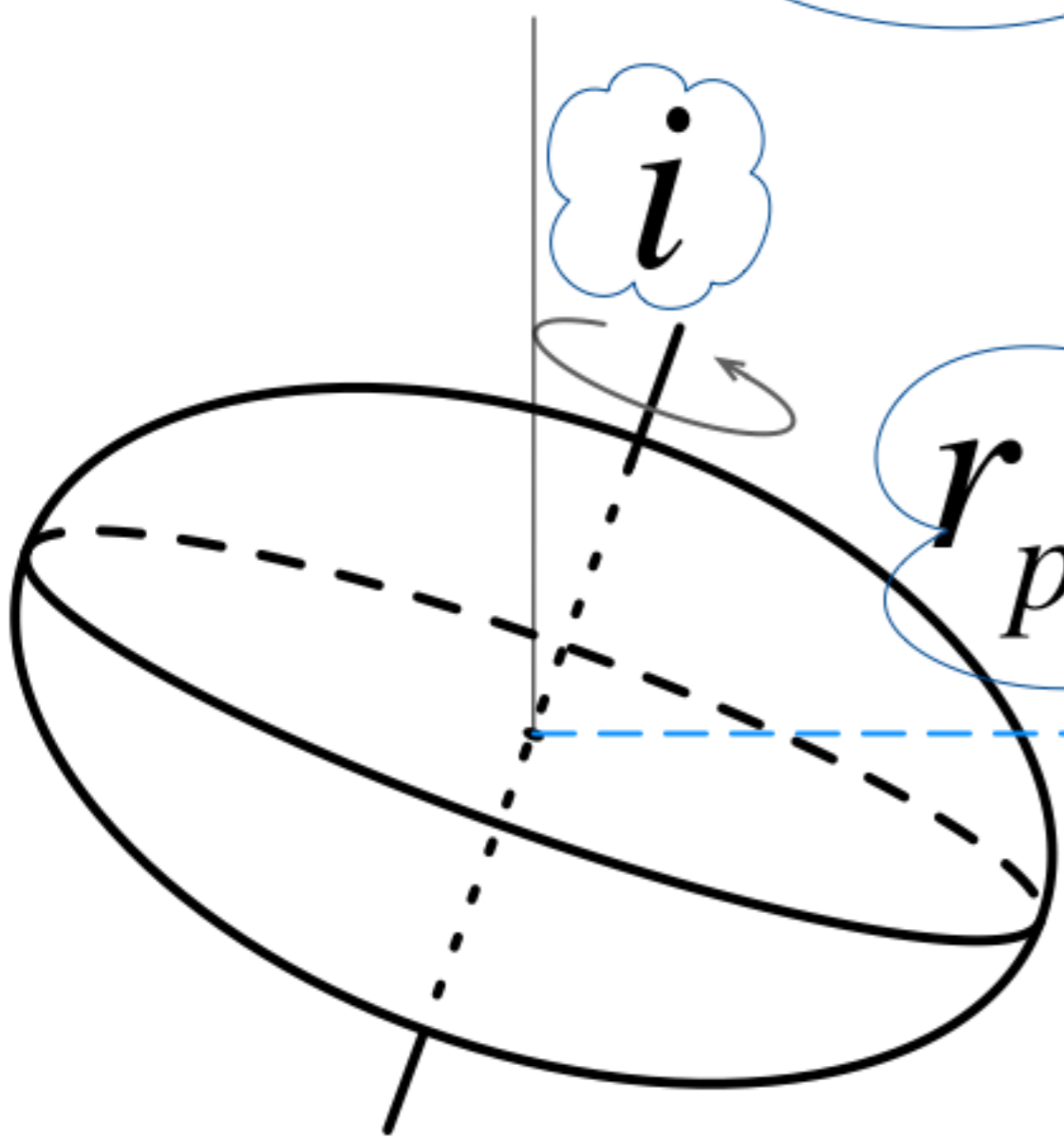
$$\xi_t(\vartheta, \varphi)$$

$$T_{eff}(\vartheta, \varphi)$$

$$\log g(\vartheta, \varphi)$$

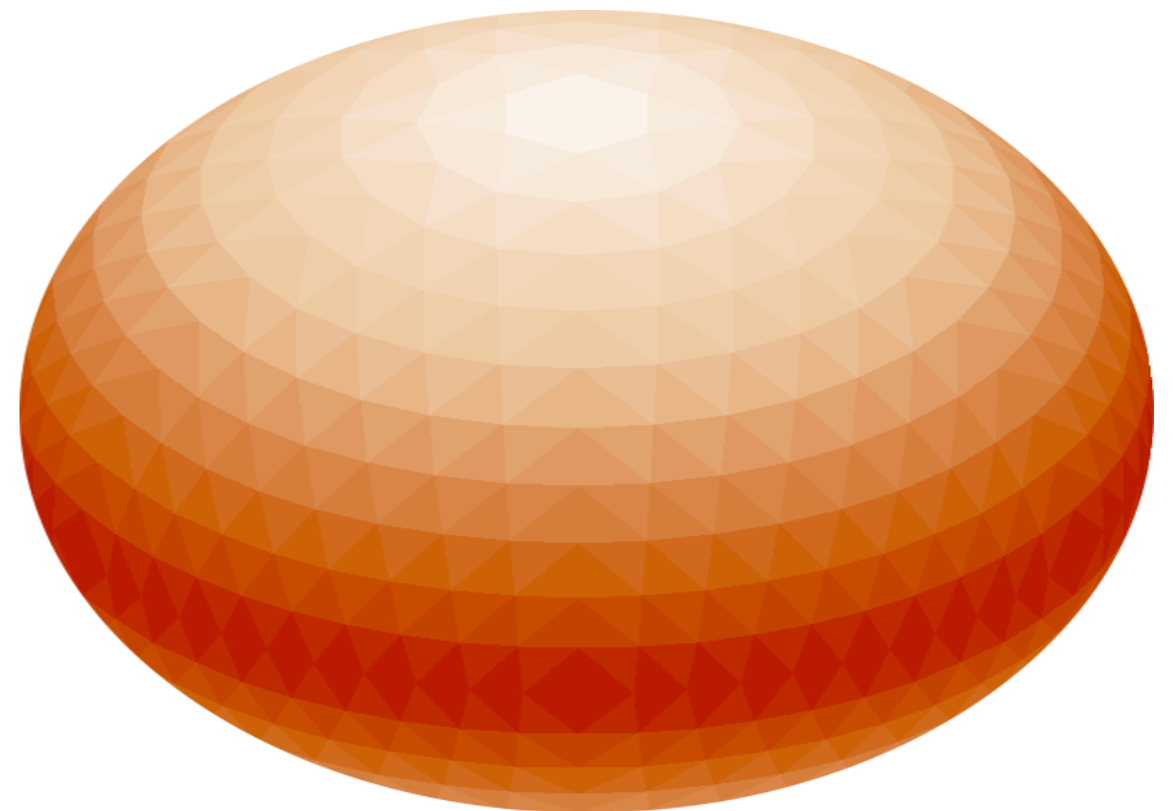
$$r_{pol} / r_{eq}$$

$$v_{rot}(\vartheta)$$



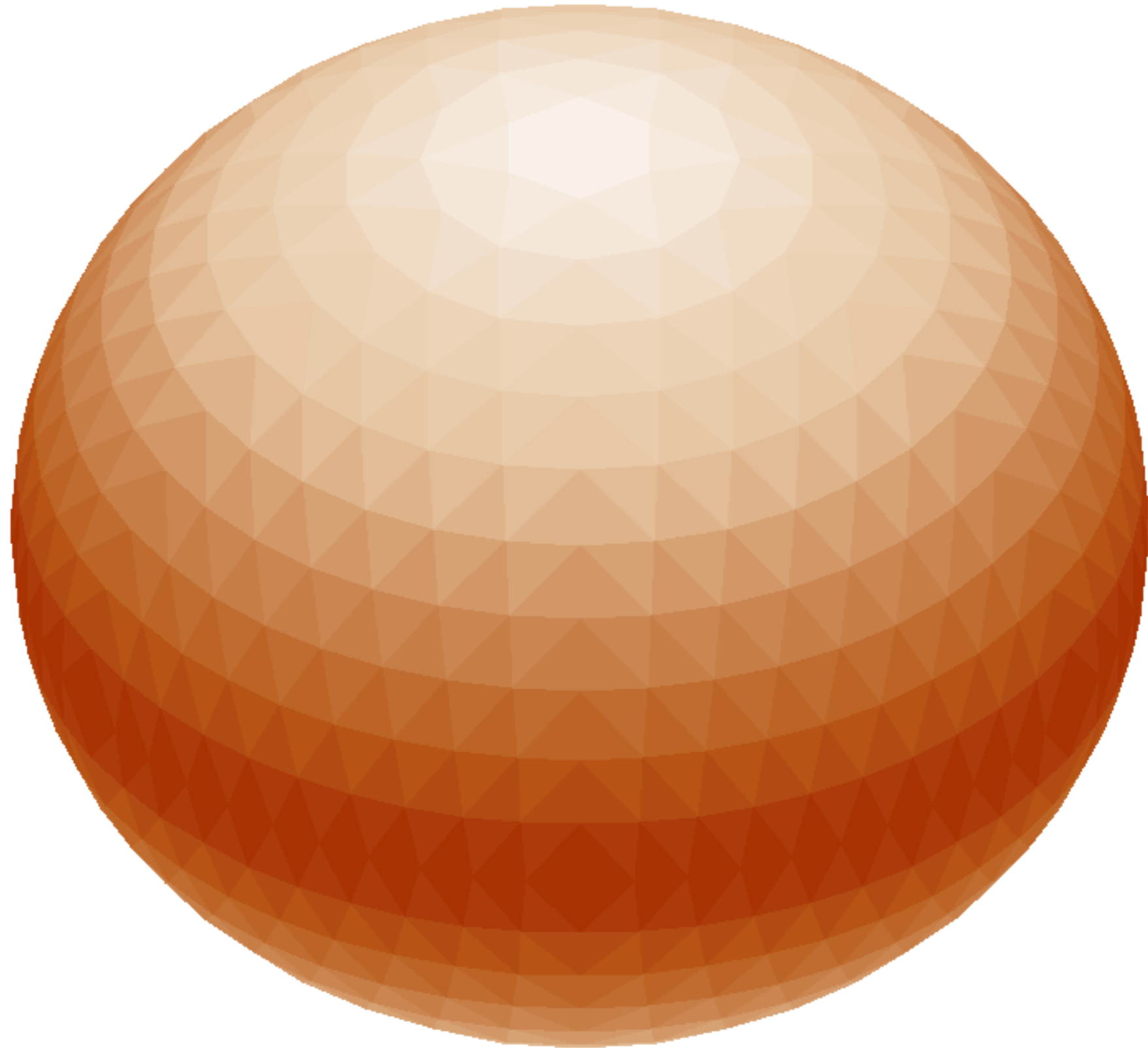
r_{pol} / r_{eq}
 i
 $v_{rot}(\vartheta)$
 $T_{eff}(\vartheta, \varphi)$
 $\log g(\vartheta, \varphi)$
 $\xi_t(\vartheta, \varphi)$
 $A_{el}(\vartheta, \varphi)$

createStarSurface



$n = 11$

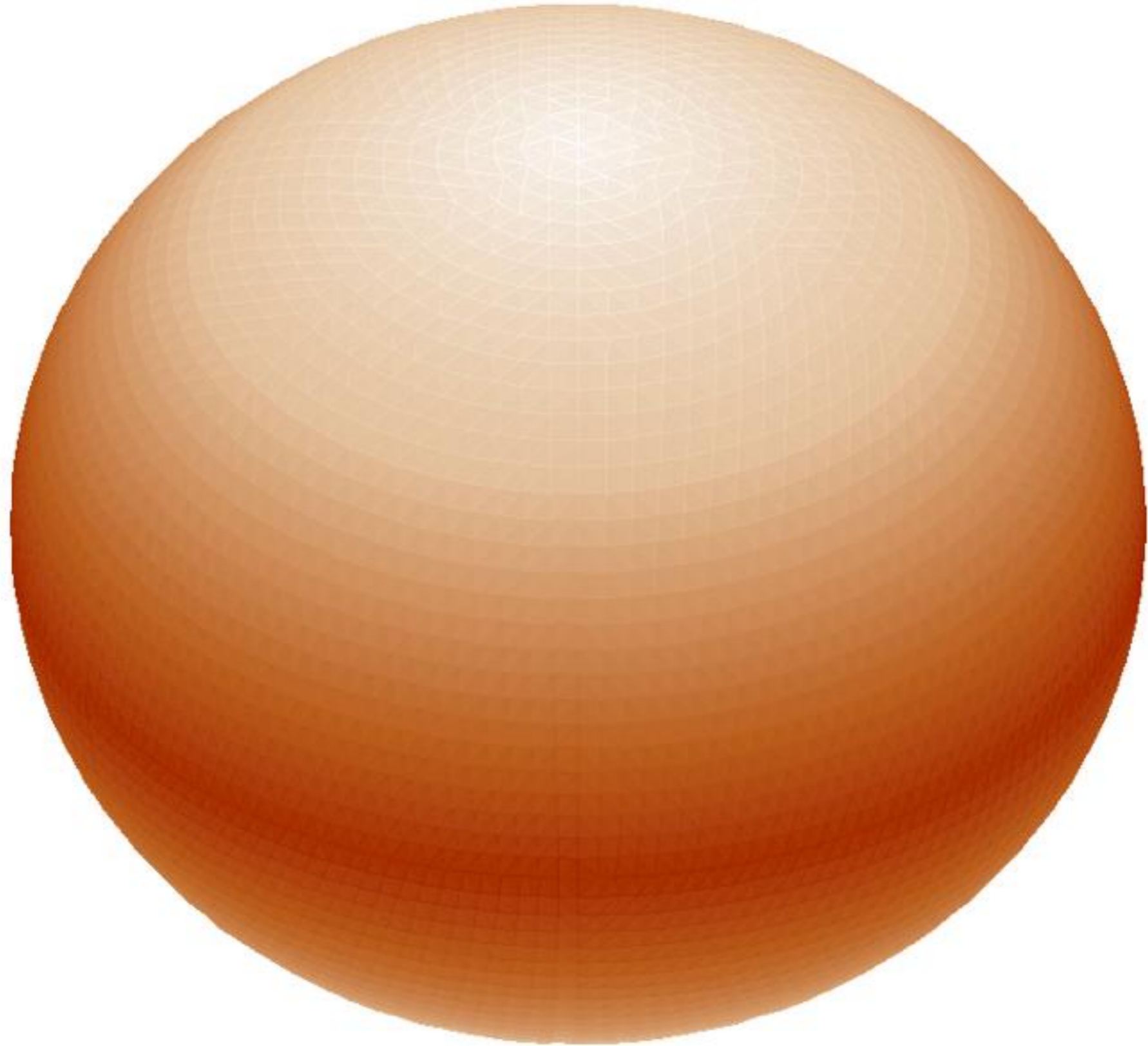
T_{eff}



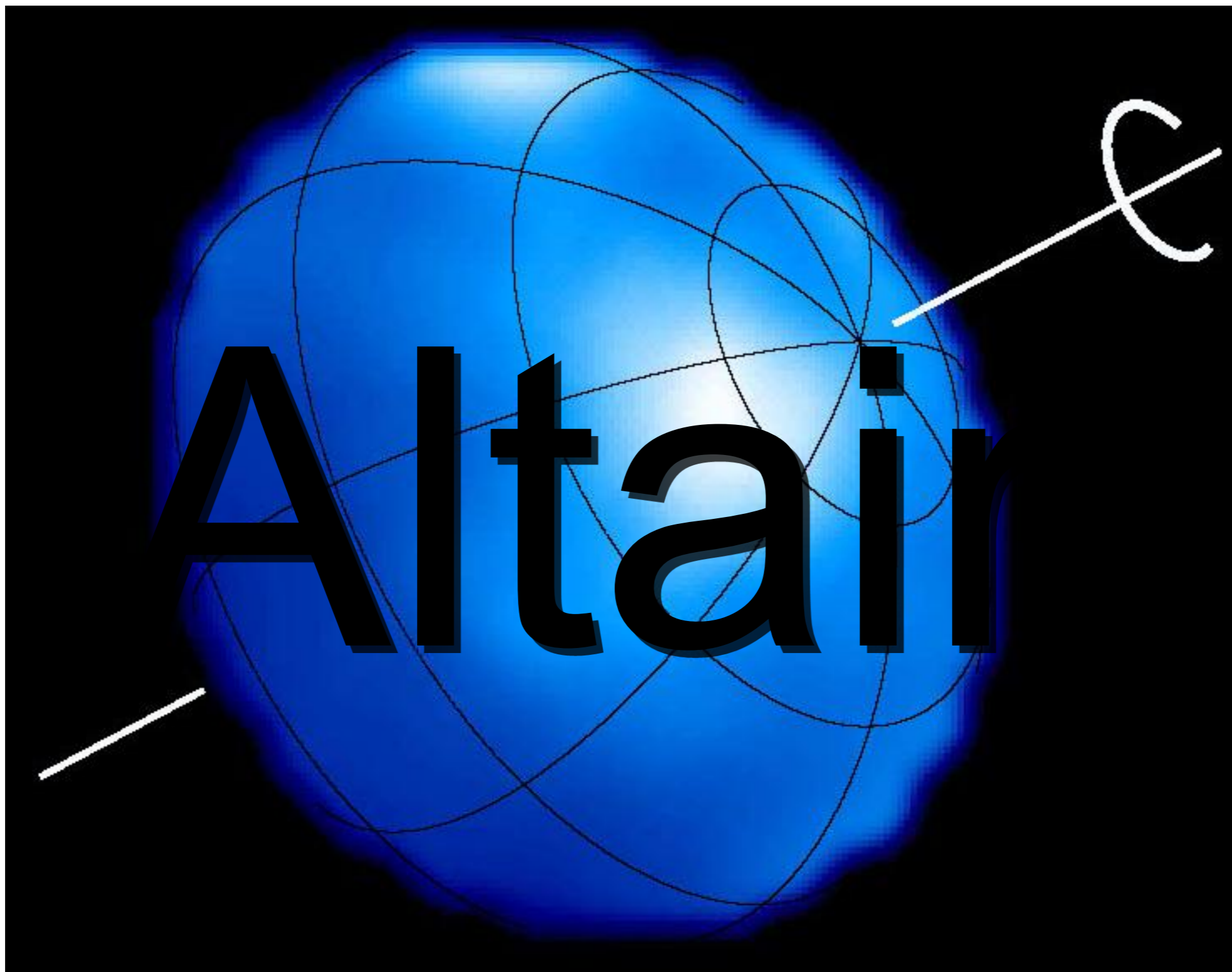
Computing time: seconds...

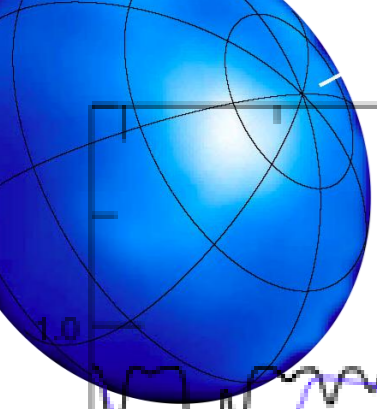
$n = 31$

T_{eff}



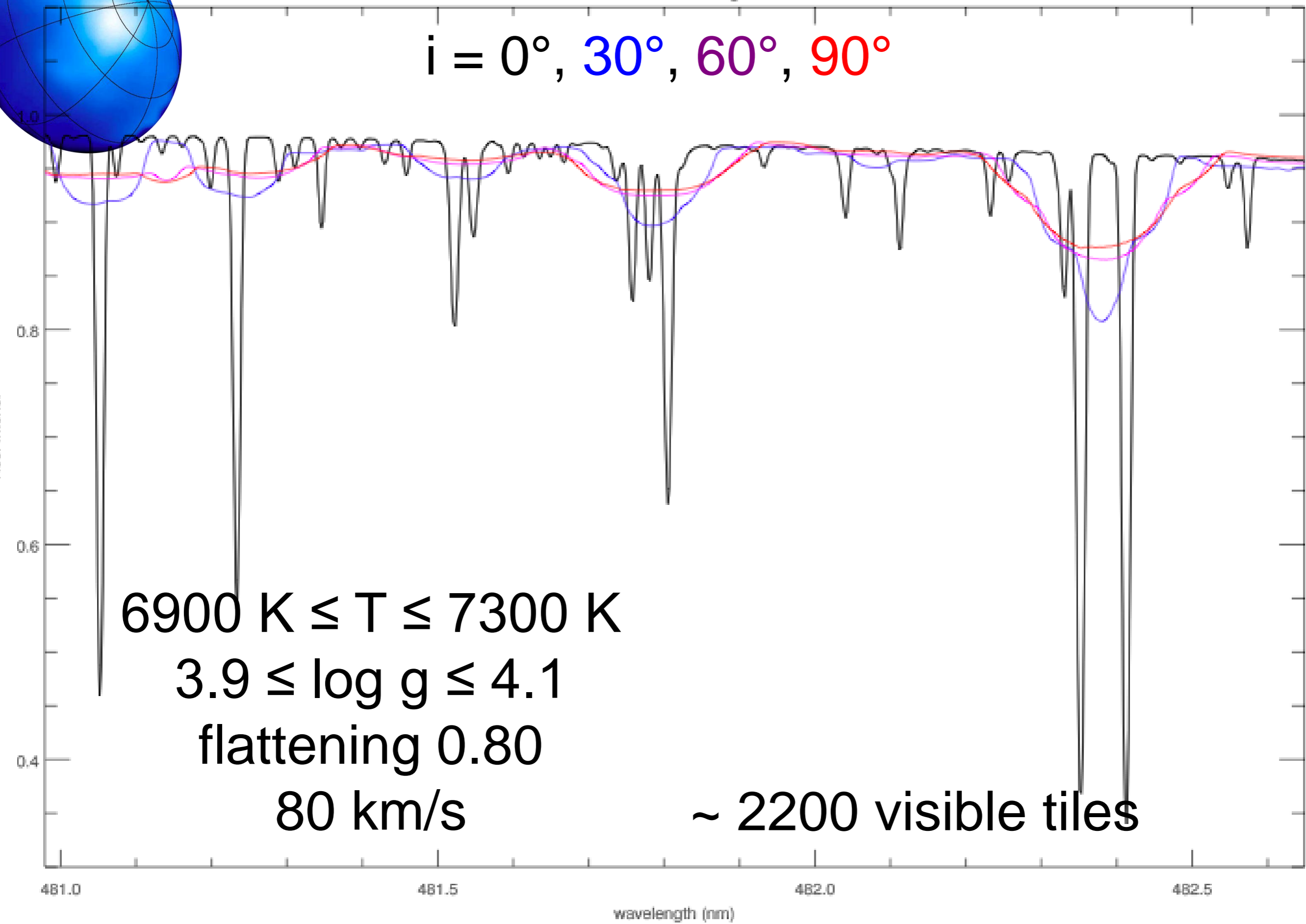
Computing time: minutes...





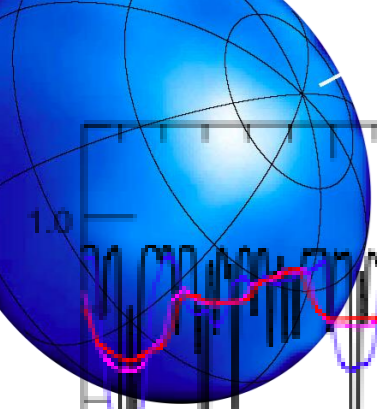
Flux vs. wavelegth

$i = 0^\circ, 30^\circ, 60^\circ, 90^\circ$



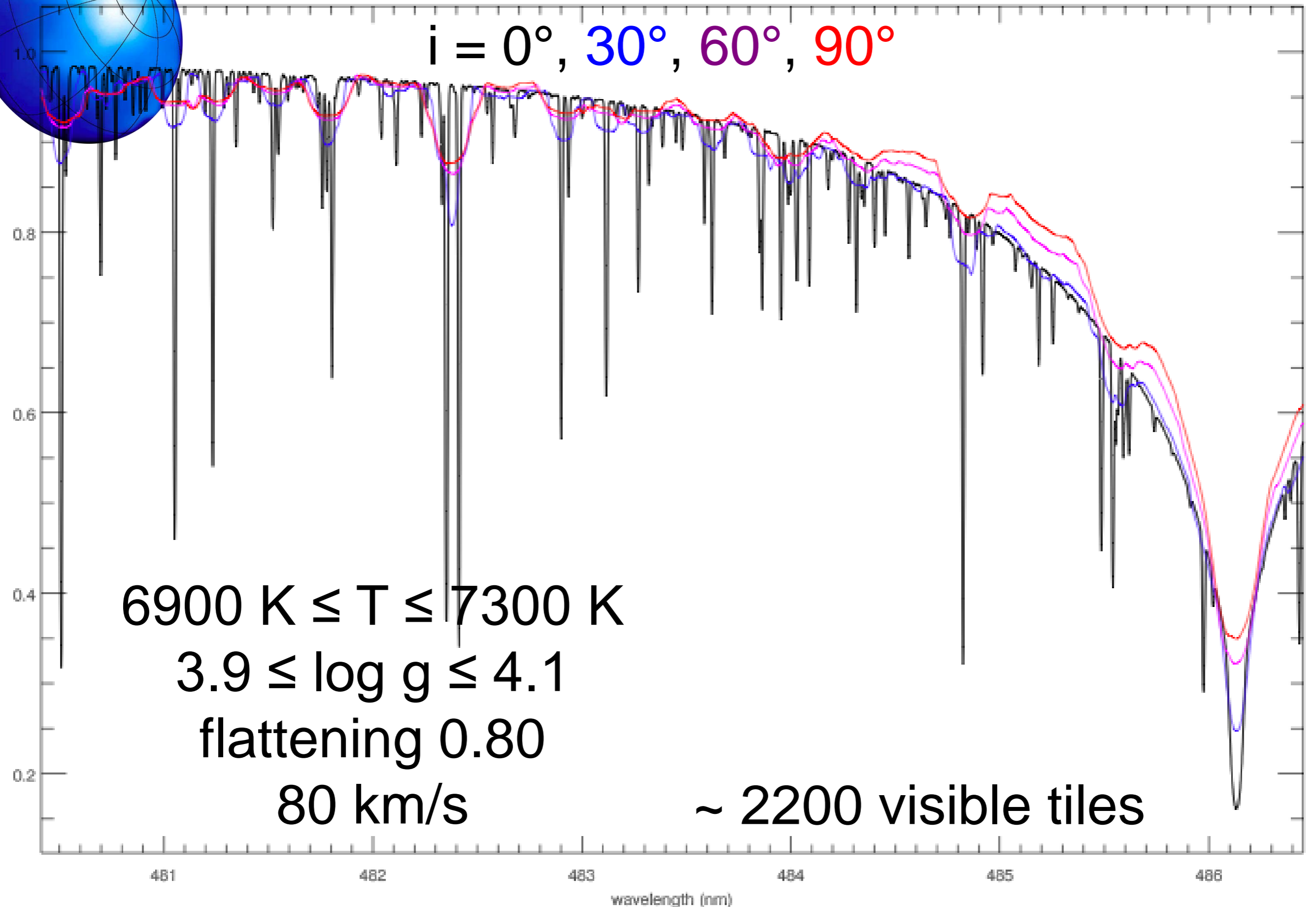
$6900 \text{ K} \leq T \leq 7300 \text{ K}$
 $3.9 \leq \log g \leq 4.1$
flattening 0.80
80 km/s

~ 2200 visible tiles



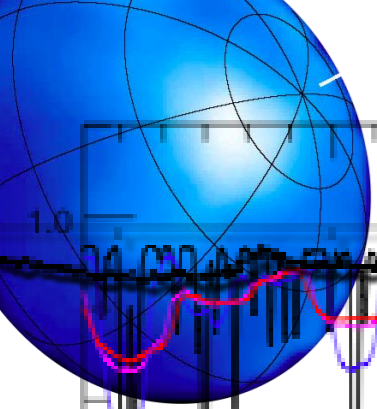
Flux vs. wavelegth

$i = 0^\circ, 30^\circ, 60^\circ, 90^\circ$



$6900 \text{ K} \leq T \leq 7300 \text{ K}$
 $3.9 \leq \log g \leq 4.1$
flattening 0.80
80 km/s

~ 2200 visible tiles

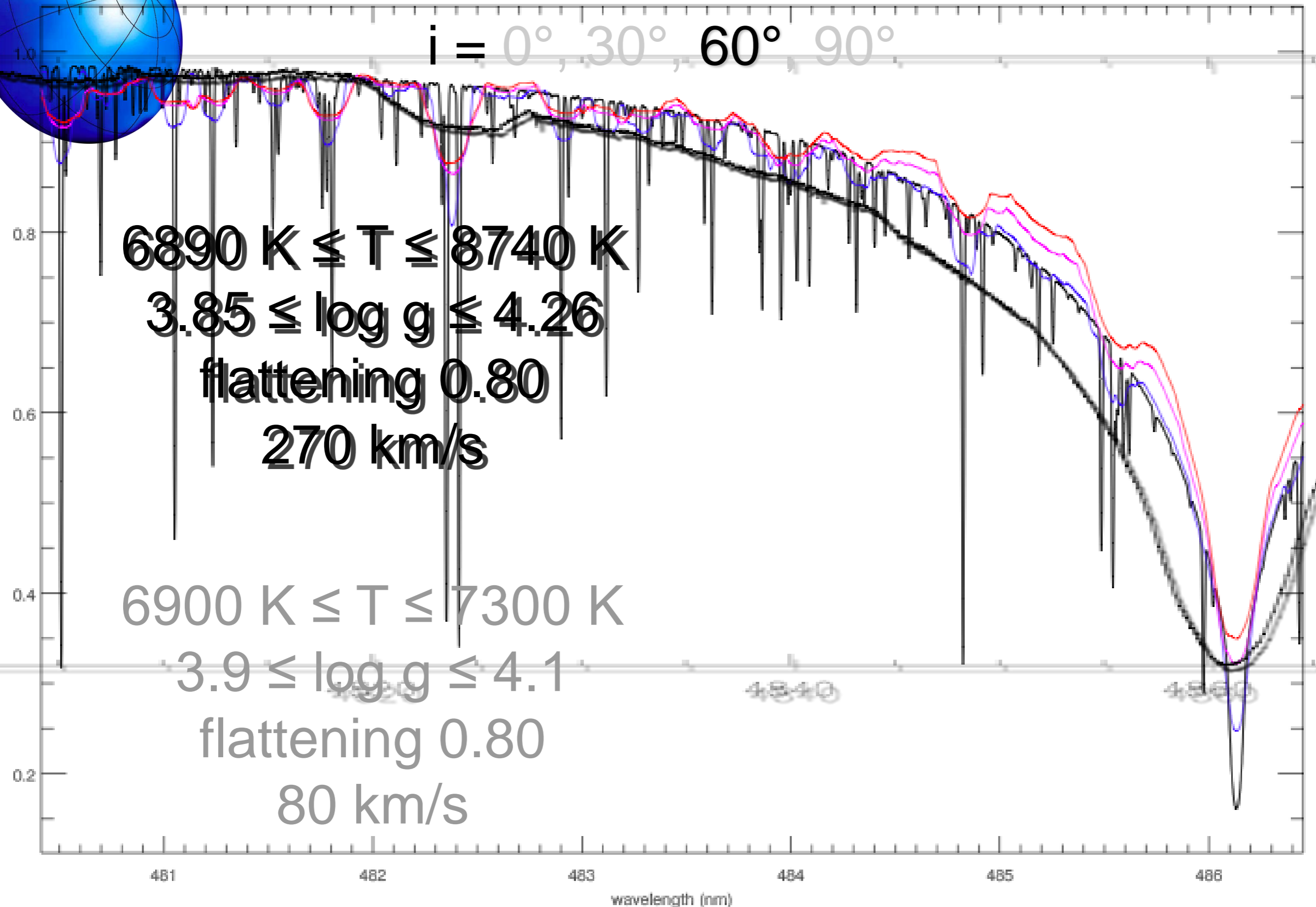


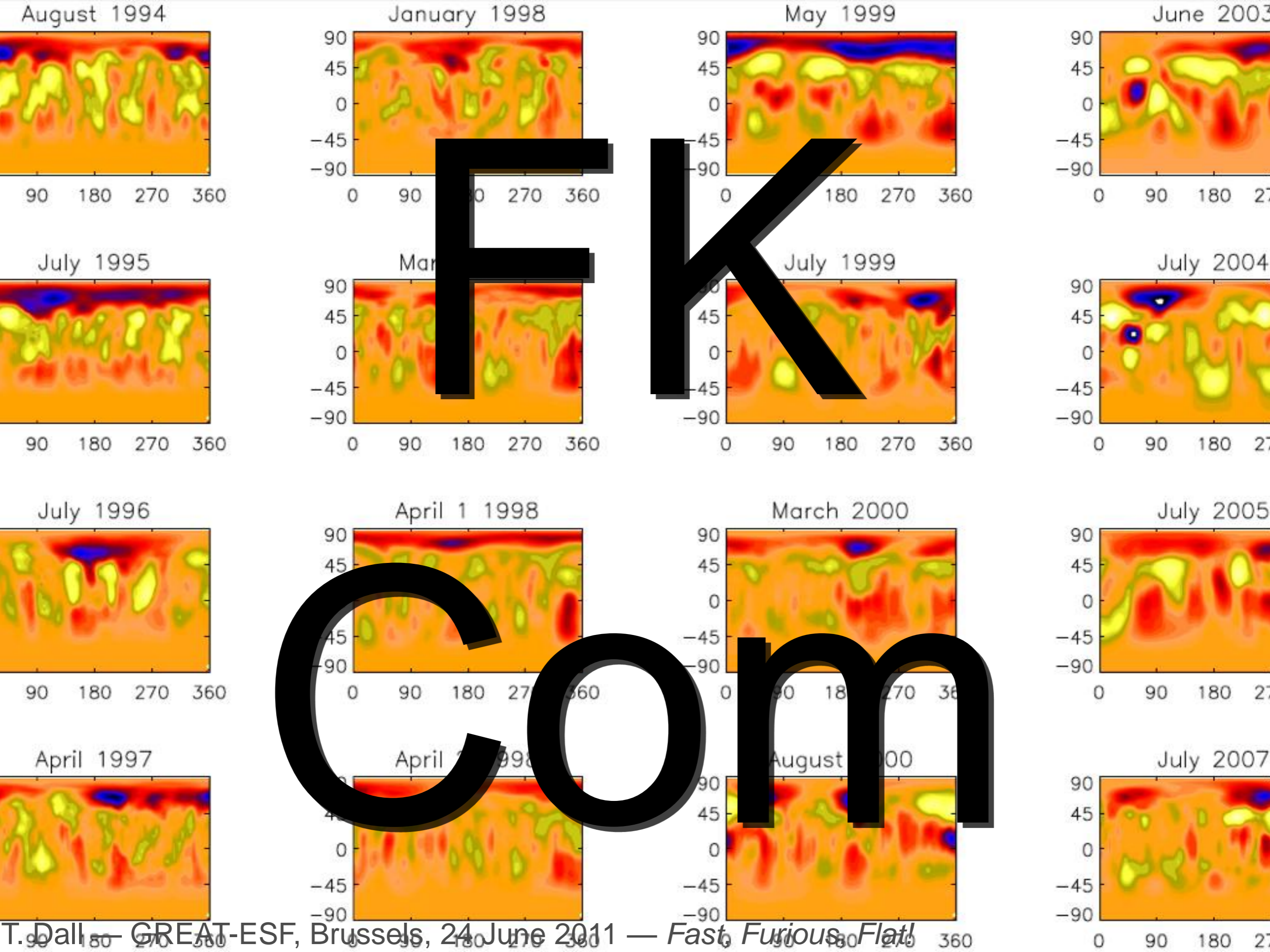
Flux vs. wavelegth

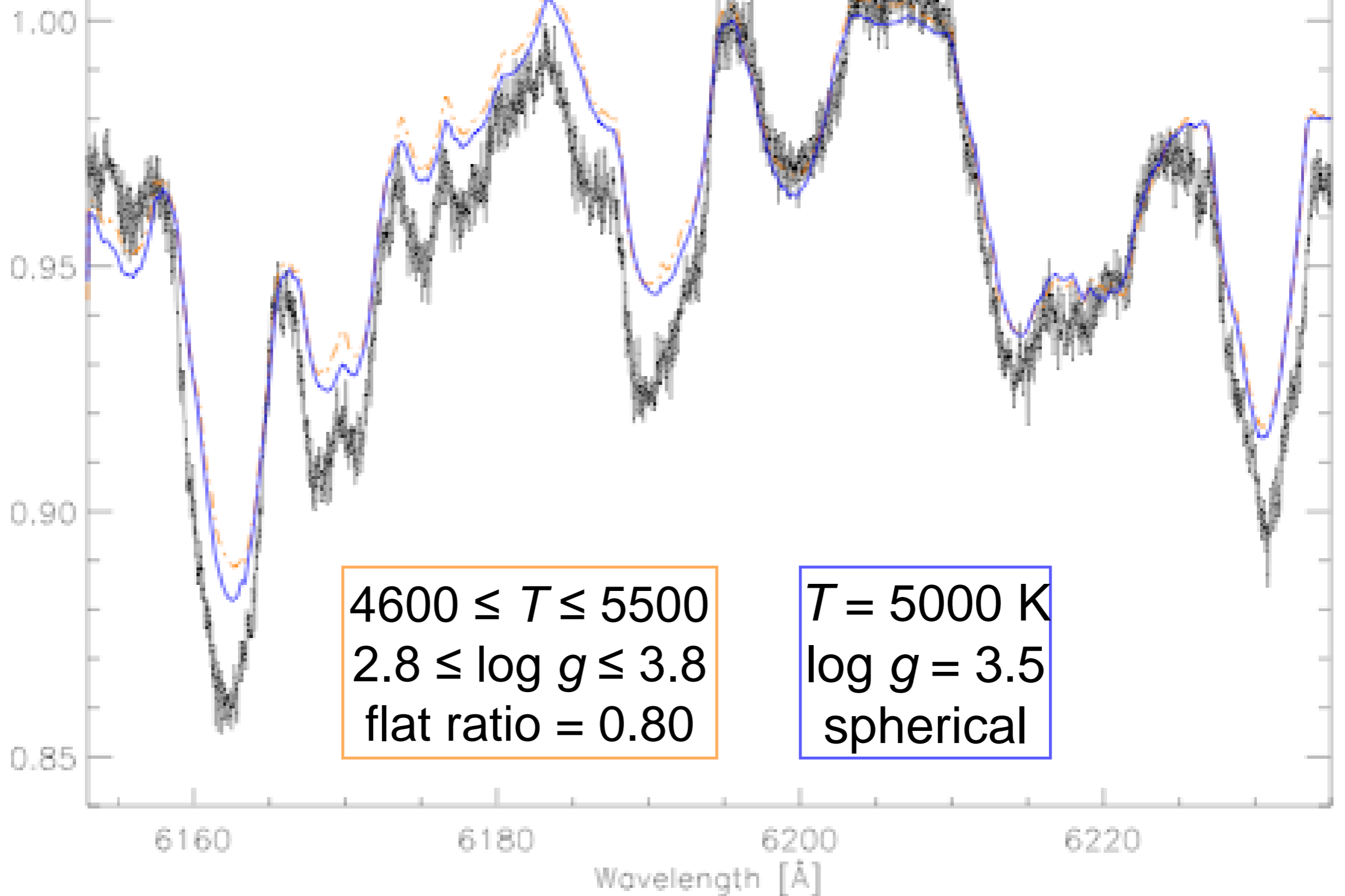
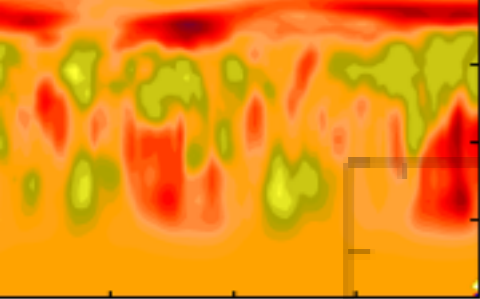
$i = 0^\circ, 30^\circ, 60^\circ, 90^\circ$

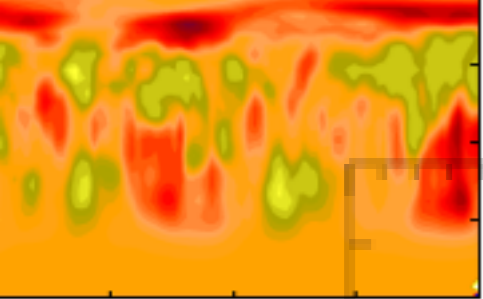
$6890 \text{ K} \leq T \leq 8740 \text{ K}$
 $3.85 \leq \log g \leq 4.26$
flattening 0.80
270 km/s

$6900 \text{ K} \leq T \leq 7300 \text{ K}$
 $3.9 \leq \log g \leq 4.1$
flattening 0.80
80 km/s

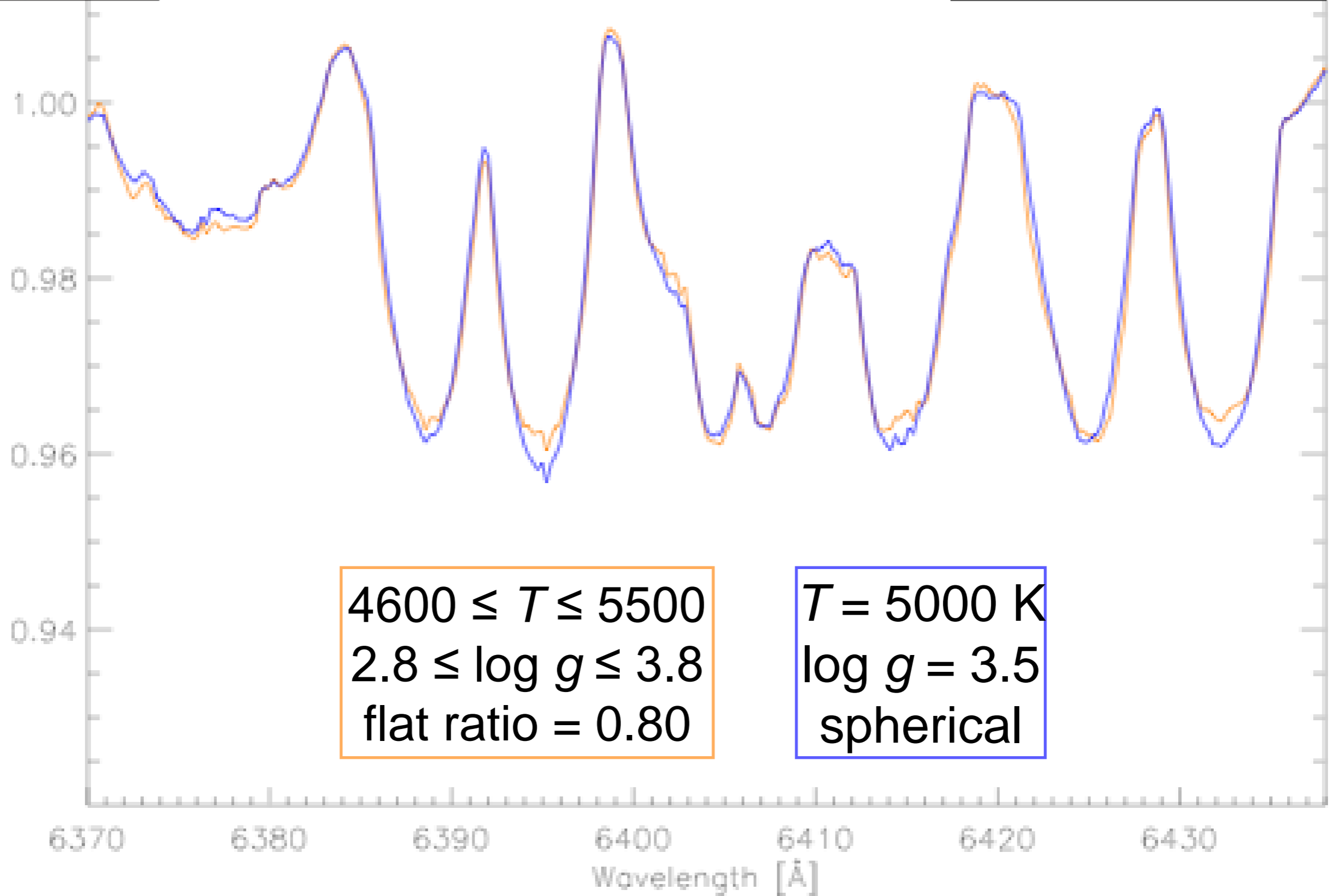


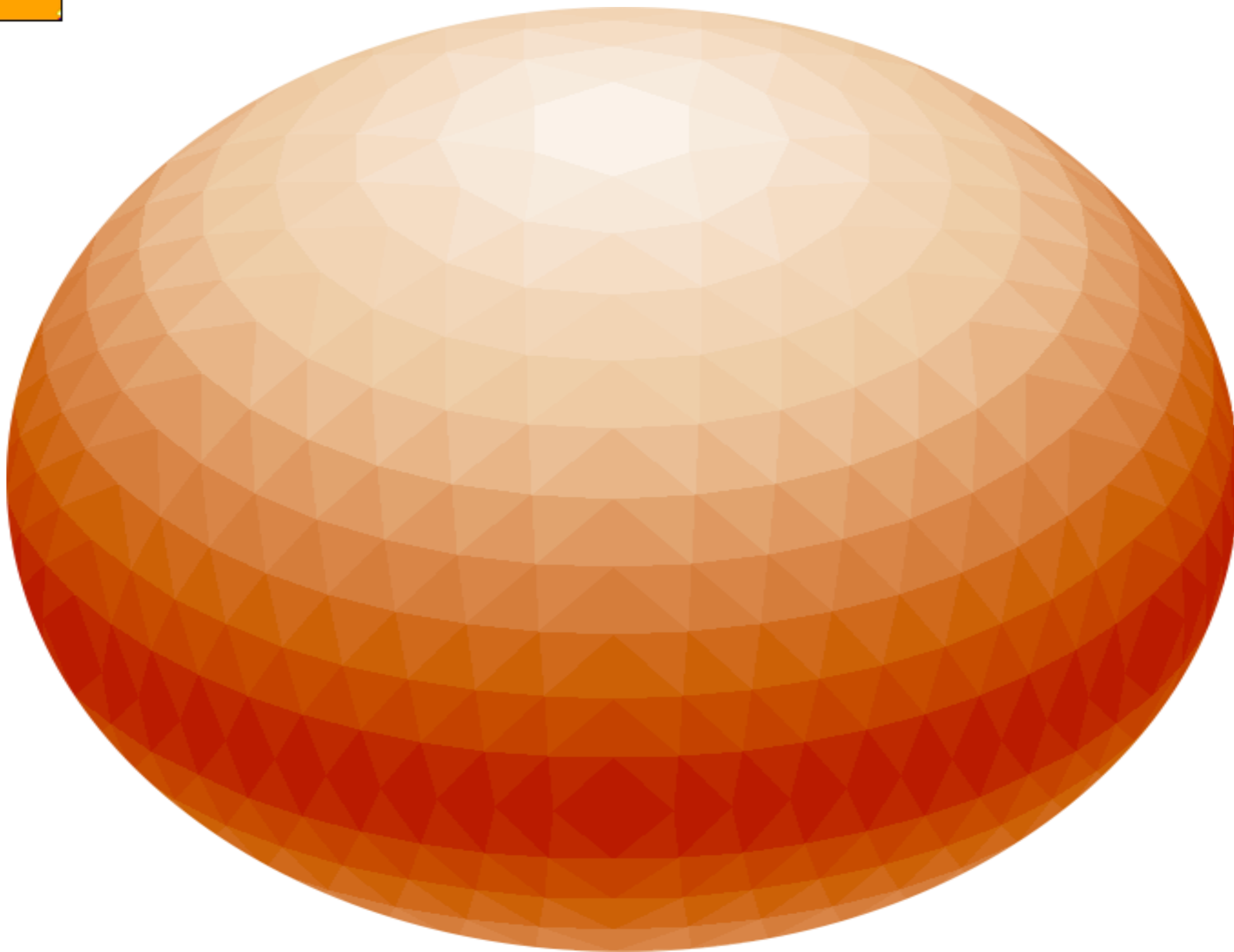
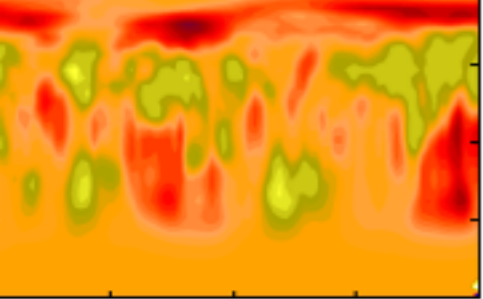


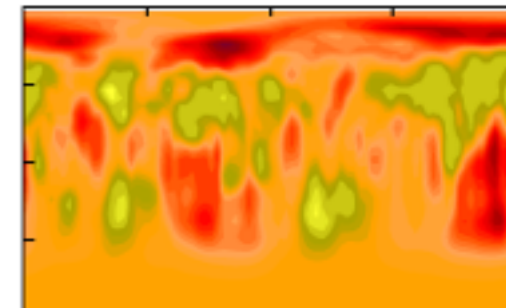
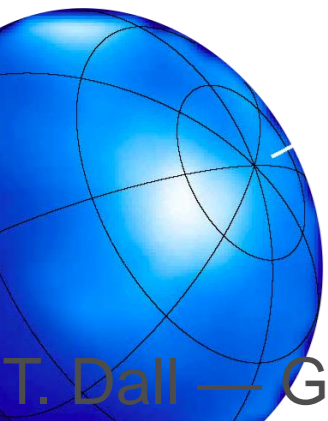
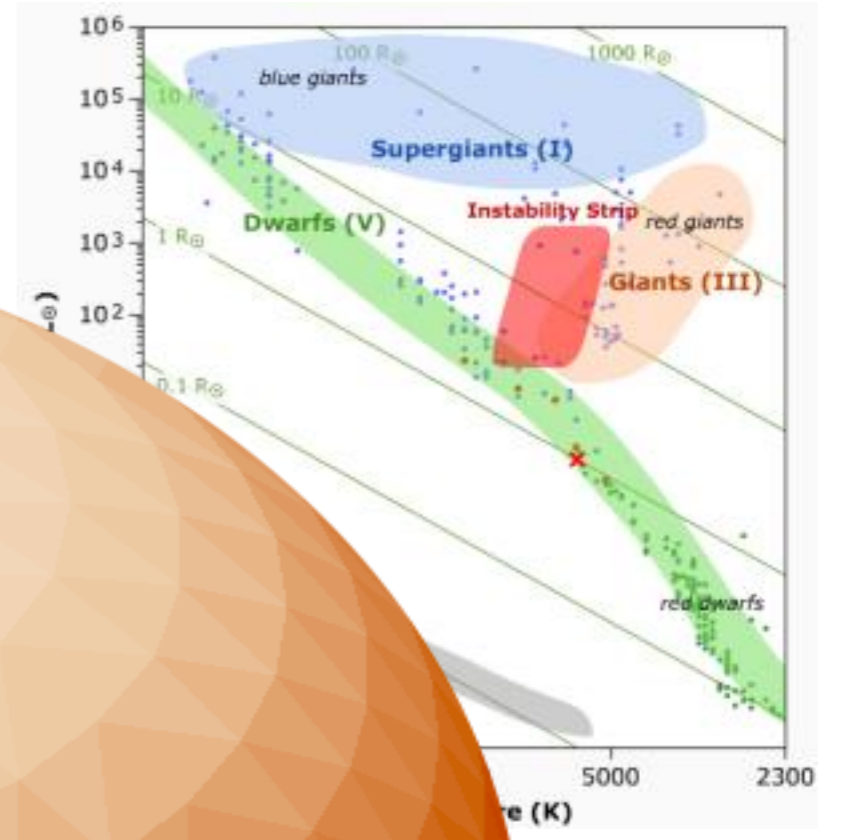
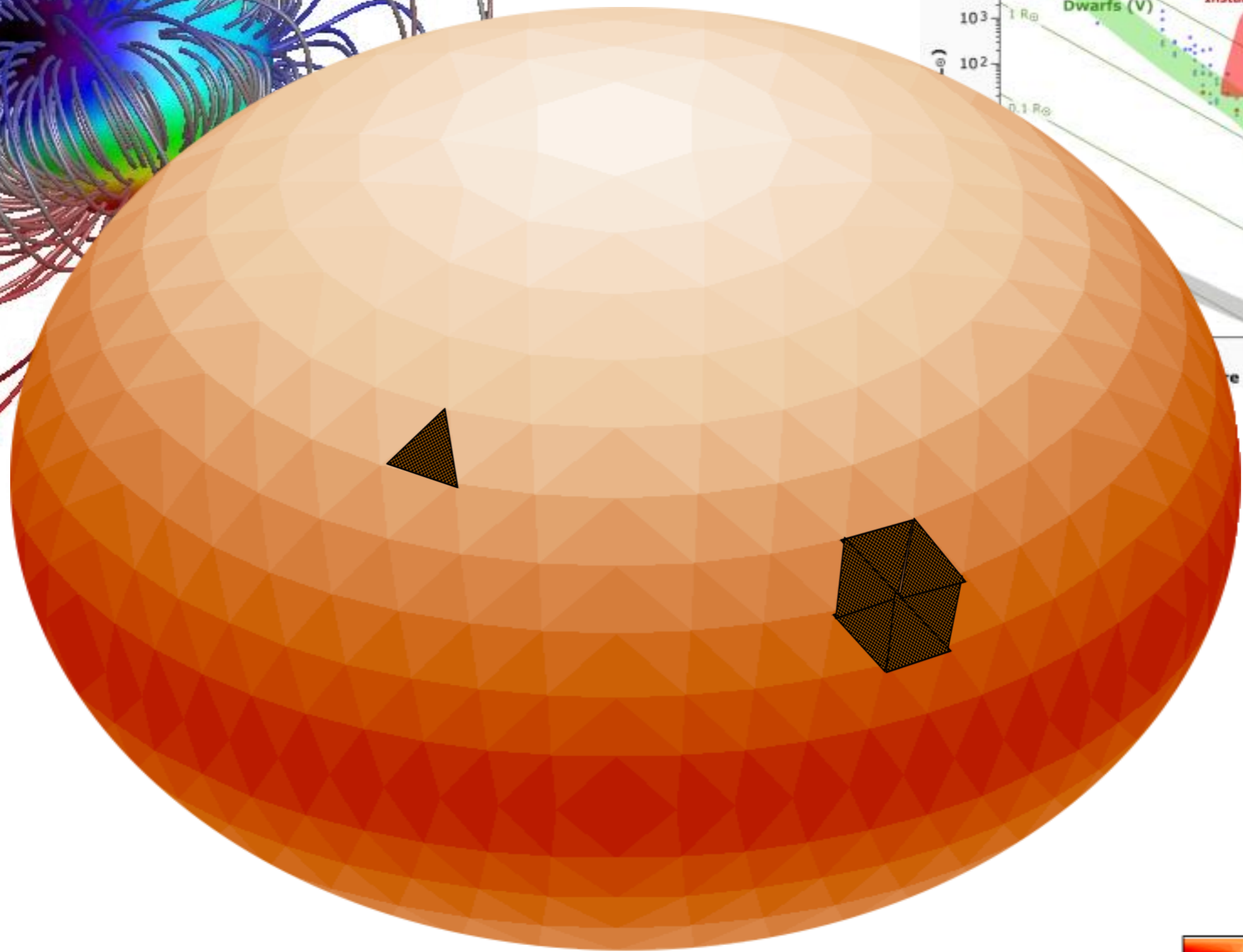
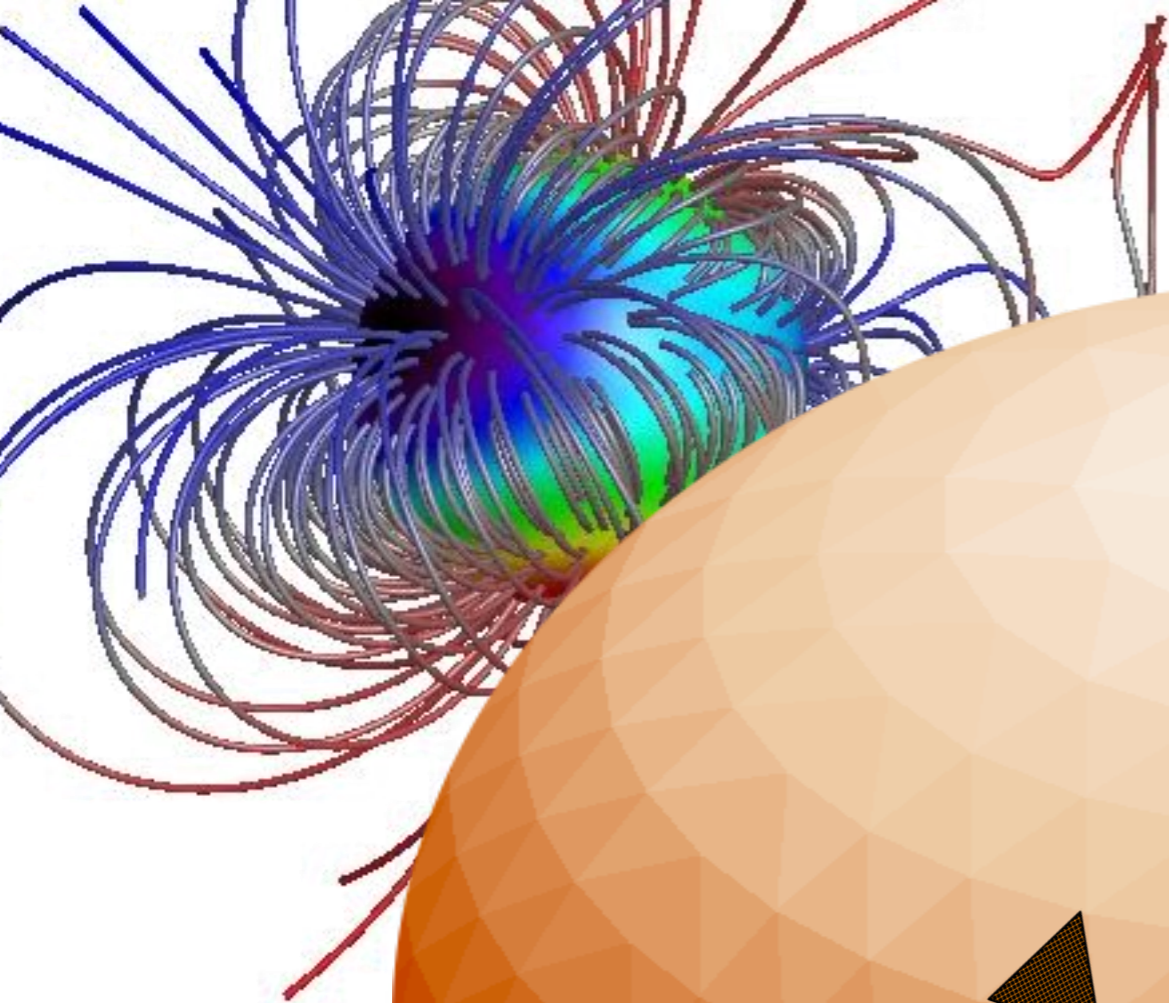


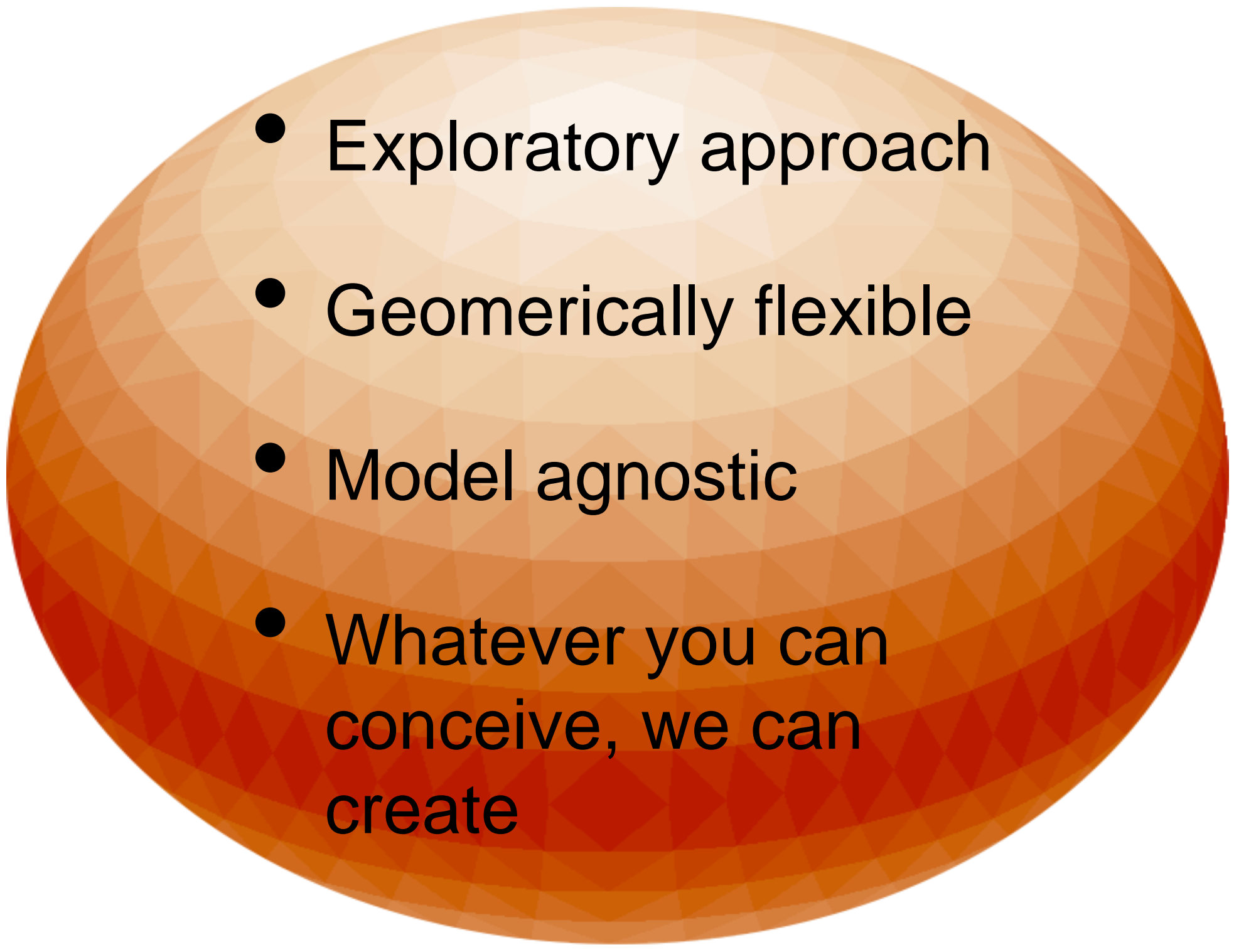


$i = 60^\circ$
 $v \sin i = 160 \text{ km/s}$







- 
- Exploratory approach
 - Geometrically flexible
 - Model agnostic
 - Whatever you can conceive, we can create