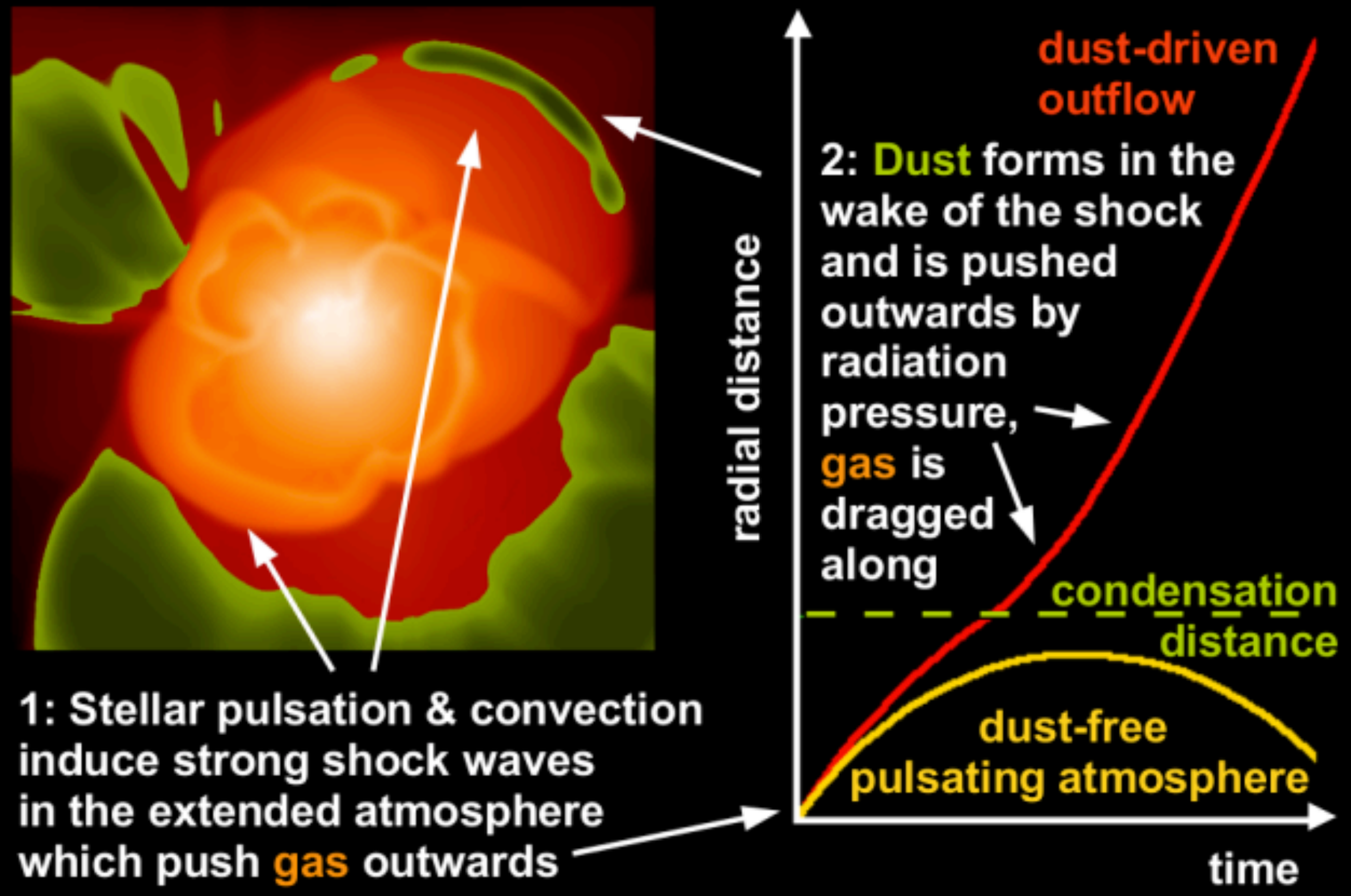
# CO5BOLD

- The grains can **grow** by the addition of abundant atoms
- And **shrink** due to thermal evaporation
- Considering just Fe-free silicates (Höfner & Freytag 2022)
- Grain growth does not describe nucleation (solid seed particles)
- Radiation pressure is the only dust opacity effect taken into account. (simplified versions)




Höfner & Freytag 2016

# Parametrs for this particular study

**Table 1.** Basic model parameters and derived quantities.

Period

| model | $M_\star$ ($M_\odot$) | $M_{\rm env}$ ($M_\star$) | $L_\star$ ($L_\odot$) | $n_x^3$ | $x_{\rm outerbox}$ ($R_\odot$) | $x_{\rm innerbox}$ ($R_\odot$) | $C_{T\rm fac}$ | $t_{\rm avg}$ (yr) | $R_{\star,s_{\rm min}}$ ($R_\odot$) | $T_{{\rm eff},s_{\rm min}}$ (K) | $\log g_{s_{\rm min}}$ cgs | $P_{\rm puls}$ (d) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| st28gm06n050 | 1.0 | 0.182 | 7049 | $599^3$ | 4858 | 2340 | 0.75 | 54.61 | 351 | 2823 | -0.656 | 510 |
| st28gm06n052 | 1.0 | 0.181 | 7030 | $679^3$ | 6386 | 2640 | 0.77 | 57.78 | 355 | 2806 | -0.665 | 545 |
| st28gm05n033 | 1.5 | 0.298 | 6702 | $559^3$ | 3454 | 1581 | 0.72 | 27.70 | 304 | 2993 | -0.358 | 297 |

- The stellar parameter sets of the 3D models presented here were chosen to fall into two different regimes: according to results from 1D DARWIN simulations, model st28gm06n052 is expected to develop a pronounced dustdriven wind, while the 1D counterpart of model st28gm05n033 fails to produce an outflow

Freytag & Höfner 2023