ON THE FADING OF AGB REMNANTS

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We investigated the question how the evolution of post-AGB models depends on their history, i.e. on their initial mass and AGB evolution. Therefore, we calculated the evolution of a 3 and $5M_{\odot}$ star from the main sequence towards the stage of white dwarfs. These models suffered from 9 and 17 thermal pulses on the AGB, resp., and the common mass-loss law led to final masses of 0.61 and $0.84M_{\odot}$, resp., which are consistent with reasonable initial-final mass relationships. It was found that more massive AGB remnants fade much more slower than hitherto assumed. Thus, we conclude that only a reliable combination of initial and final mass yields the right fading time scales for more massive post-AGB models. To prove that we have re-calculated the evolution of the $3M_{\odot}$ model with another mass-loss law leading to 86 thermal pulses and a remnant mass of $0.84M_{\odot}$, a combination which, however, does not comply with initial-final mass relations. Comparing now the post-AGB evolution of the two massive models of *equal* remnant mass ($0.84M_{\odot}$) but *different* initial masses (3 and $5M_{\odot}$, resp.) yields completely different fading time scales. Thus we confirm by direct calculations the suggestion of Blöcker and Schönberner (1990, A&A 240, L11) that not only the remnant mass but also the initial mass determines the time scales of more massive central stars.

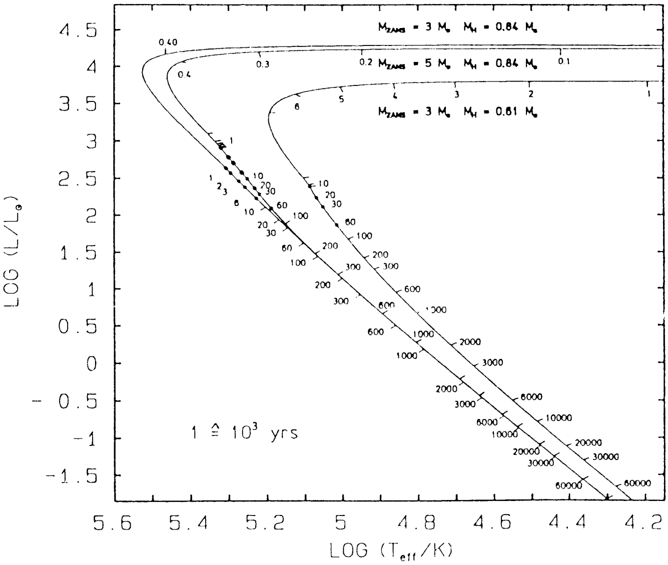

Fig. 1: Evolutionary tracks of three hydrogen-burning post-AGB models (pulse phase $\phi = 0.5$) of $(M_{\rm ZAMS}/M_{\odot}, M_{\rm H}/M_{\odot}) = (3, 0.605)$, $(5, 0.836)$ and $(3, 0.836)$. Note that the latter combination of initial and final mass are not consistent with reasonable initial-final mass relationships. Timemarks are in units of 10^3 yrs.

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