

APR08-2008-000723

Abstract for an Invited Paper
for the APR08 Meeting of
the American Physical Society

Stellar convection and turbulence¹

HERBERT J. MUTHSAM, Faculty of Mathematics, University of Vienna, Austria

We give an overview on recent research about turbulent stellar convection. In addition to analytical models there are in particular numerical models being developed at an increasing rate. Such simulations presently consider already rather varied contexts in stellar physics, starting with classical aspects such as solar granulation, attempts to model larger parts of convective envelopes of normal stars or stellar convective cores. They address now even the less classical situation where convection in shells is more directly connected to nuclear burning such as oxygen burning in late stages of the evolution of massive stars. We describe the main features predicted by such models, viz. the general structure of the convective flows, the nature of the turbulent field and overshooting. We will also address model verification and open questions.

¹Support from the Austrian Science Foundation is gratefully acknowledged (grants P17024, P18224)