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Experimental Envelope Models for Cepheids

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35.04  Experimental Envelope Models for Cepheids.
N.R. SIMON, U. Neb.-Lincoln. Numerical experiments are
conducted with a view toward constructing Cepheid models
which satisfy observational and theoretical constraints.
Pulsation analysis is performed in the linear theory.
Radiative models are studied, as well as those in which
the H-zone is spread in a manner that mimics the effect
of mixing-length convection. When the influence of con­
vection on pulsation is examined in two artificial lim­
its, adiabatic and isothermal, the former is found to be
unsatisfactory, the latter tentatively acceptable. Fol­
lowing the results of earlier investigations, we test
the effect of opacity on pulsational period ratios. It
is found that an approximate doubling of the envelope
opacity for temperatures \( \gtrsim 10^6 \text{ K} \) seems sufficient (this
work is still in a preliminary stage) to satisfy observ­
ational constraints with otherwise normal evolutionary
models in both the double mode and bump Cepheid domains.
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