DOUBLE MODE PULSATING STARS AND OPACITY CHANGES

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Abstract. The basic physical properties of double mode Cepheids and double mode δ Scuti stars are still highly controversial. Based on results of very recent opacity calculations a detailed consistent, possible solution of the problem of the nature of double mode variable stars has been developed. Extensive studies have been performed to establish the rules governing the morphology of the period ratio diagrams. An ideal reproduction of the period ratio data for both stellar types are obtained assuming an increase of the Cox-Steward opacity by a factor of about 2.5 in the temperature range from 1.5×10^5K to 8.0×10^5K. Consequences for the mass calibration of Petersen diagrams are evaluated.

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