PROBLEMS IN THEORY OF STELLAR ATMOSPHERES

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Abstract

There are apparently at least two basic problems in astrophysics: 1) What is the structure of the emitting gas being observed, and 2) Why does that gas have that structure?

In some respects, these problems are quite distinct, but certainly the second cannot be answered without detailed consideration of the first. The question is therefore, how do we solve the first problem, what is an adequate diagnostic approach? It should be obvious that we start with a basic set of equations describing a general radiating gas, and then examine methods of solution of these equations. It is also obvious that we cannot solve explicitly, and in closed form, these basic equations, and then various mathematical approximations and physical assumptions must be employed. The purpose of the series of lectures had as its orientation, the somewhat rapid examination of the usual simplifications of astrophysical spectroscopy and the corresponding non-relation (indeed antirelation in some cases) to the « real-world ».

References