

## **Book Review: *Instabilities and Chaos in Quantum Optics***

**Instabilities and Chaos in Quantum Optics.** F. T. Arecchi and R. G. Harrison, eds. Springer-Verlag, 1987.

Deterministic chaos is a subject of great interest, which is attracting the attention of an ever-increasing number of researchers and producing the same shock as the crisis of predictability which 60 years ago accompanied the advent of quantum mechanics. Thus, the success of the model introduced by Lorentz to account for hydrodynamic instability resides in the loss of predictability exhibited by this three-dimensional deterministic system rather than in its agreement with experimental data (actually, at the quantitative level this agreement is not quite satisfactory).

In quantum optics, on the contrary, the adoption of suitably adapted versions of the Lorentz model leads to a close correspondence between experiment and theory. Thus, in this field of investigation, not only is deterministic chaos a property of academic interest, but it is also the basic physical aspect behind any really reliable dynamical picture.

The book is a collection of nine review papers, the authors of which are leading investigators in the field of quantum optics, preceded by an introduction written by the two editors. The sequence of papers is organized so as to provide a convincing demonstration of the above point of view, as well as a remarkable report on the state of the art in this fascinating field of investigation.

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