

# Lecture Notes in Physics

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## Hadrons and Heavy Ions

Proceedings of the Summer School  
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## P R E F A C E

Heavy ion physics has in the recent past grown far beyond the scope of traditional nuclear physics. In fact, the extreme conditions that may prevail during the collision are expected to shed light on fundamental aspects of the constituents of matter. It appears that the two branches of physics - nuclear and elementary particle physics - merge again after having developed separately over several decades.

The Organizing Committee of the Course 'Hadrons and Heavy Ions' has tried to highlight this recent development so as to underline this fascinating 'interdisciplinary' field. These proceedings provide a very readable account of the course presented by six outstanding lecturers who gave coverage to the mean field approach to HI collisions, exotic nuclear shapes, overcritical fields, hadronic degrees of freedom, the QCD approach to nuclear interaction and the quark gluon plasma. While it is natural for a fairly young scientific activity to be controversial in certain aspects, the lecturers performed their task in a lucid fashion, thus stimulating numerous discussions during and after the sessions.

The beautiful surroundings, the campus of the University of Cape Town itself and the facilities, could only help to foster an intimate atmosphere in which lecturers and audience mingled to the benefit of all. The Organizing Committee gratefully acknowledges the support given by the University.

In common with previous Advanced Courses in Theoretical Physics, this Course was generously sponsored by the Council for Scientific and Industrial Research (CSIR) of South Africa. The Organization of Theoretical Physicists is indebted for the financial and organizational support made available by the CSIR.

We owe a last word of thanks to the editors of 'Lecture Notes in Physics' for their cooperation over the appearance of these notes.

Johannesburg, South Africa  
April 1985

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