

## INTRODUCTION

Since its foundation, Celestial Mechanics has been devoted to the study of individual orbits and for short spans of time. Its aims in the past were, on one hand, the preparation of ephemerides and, on the other hand, the study of individual solutions of the famous three-body problem. The wave of interest raised when Celestial Mechanics became one of the main tools in the space exploration did not change this picture. The revolution in the Celestial Mechanics approach started more recently and was founded on the technological advances recorded in space- and ground-based astronomical observations and on the general availability of fast computers. This Symposium was devoted to this new Celestial Mechanics whose aim is no more the study of individual orbits but of bundles of neighboring orbits. The 'objects' studied are the planetary system, planetary rings, asteroidal belt, meteor swarms, satellite systems, comet families, the zodiacal cloud, the preplanetary nebula, .... When the three-body problem is considered, instead of individual orbits we are, now, looking for the topology of extended regions of its phase space. As a consequence of this revolution two kinds of scientists form the realm of the new Celestial Mechanics: those who deeply know its techniques and are willing to use them in solving actual problems of astronomical or mathematical interest and those whose main preoccupation is the wealth of new observational results and are ready to use all available techniques to understand them. This Symposium was intended to be one step in the effort to close the ties between these two scientific families.

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