deterministic nature. The content is divided into seven parts covering problems of
general celestial mechanics (n-body problem, stability and periodic orbits), of solar
(planets, asteroids), and stellar systems (especially galactical ones). Exactly one half of
the book is devoted to artificial satellite dynamics. The papers concerning general
theories (intermediary orbits, drag effects) are overwhelmed by papers on more practical
problems – orbit determination, attitude motion (sometimes aimed at specific satellites;
IRS, SROSS, HIPPARCHOS) and even mission planning and powered flight. The
value of the book lies especially in the high professional level of the papers which
stimulates further questions and considerations.

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D. B. Melrose, Instabilities in Space and Laboratory Plasmas, Cambridge University

Instabilities in Space and Laboratory Plasmas is a successful attempt to provide physical
insight into the variety of instabilities in (space) plasma physics. At the same time the
book gives the necessary technicalities and prescriptions.

The book is divided into four parts: after the first, introductory, part waves and
instabilities are treated in three parts, respectively, unmagnetized collisionless,
unmagnetized collision-dominated, and magnetized collisionless plasmas.

The subject of linear instabilities is well covered in various other textbooks. Here on
one hand this topic is treated in great physical depth while on the other hand superfluous
overlap with the available encyclopedic monographs on the multitude of instabilities is
avoided. It is important that both configuration space (mhd) and velocity space
(collisionless) instabilities are treated in one book. The part on nonlinear instabilities,
especially the fairly complete account on instabilities in weak turbulence, will certainly
become a standard in the field.

The present book has some overlap with Chapters 2, 5, and 10 of the books Plasma
Astrophysics by the same author, published in 1980. However, the recent developments,
the new applications and the acute insight which can be gained from this book warrant
its publication. Altogether the book has a clear style and is a welcome addition to the
subject of linear and nonlinear plasma and mhd instabilities with emphasis on space
applications. It is useful both as an introduction and for workers in the fields of plasma
physics and plasma astrophysics.

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