

The Motion of Bubbles and Drops in Reduced Gravity. By R. SHANKAR SUBRAMANIAN & R. BALASUBRAMANIAN. Cambridge University Press, 2001. 471 pp. ISBN 0 521 49605 5. £65.00.

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This book is concerned primarily with the motion of drops (or bubbles) driven by gradients in surface tension arising from an imposed temperature gradient. Theoretical studies treating spherical drops are given a thorough and comprehensive review. The book deals with both individual drops and those interacting with other drops or nearby boundaries, and a range of analytical and asymptotic techniques for tackling these problems are presented. The effects of body-forces, surfactants, surface reaction and mass transfer are included. Much of the book is based on the authors' own contributions to the field. Theoretical results are supported by comparisons with experiments conducted in a low-gravity environment. Relevant computational studies are also described, although numerical studies of flow-induced drop deformation are given less attention. Introductory chapters provide overviews of fundamental concepts, theories and analytical techniques, and a final chapter provides an account of thermocapillary flow in slots and liquid bridges. This book will be a valuable reference text for those interested in interfacial and low-gravity fluid mechanics.