compactness arguments. The uniqueness result is confined to conditions very close to thermal equilibrium and is obtained via the implicit function theorem.

Chapter 4 describes the approach to this problem via singular perturbation theory. This is the best chapter in the book, hardly surprising in view of the research interests of the author. There is a very nice theorem showing how the singular perturbation construction approximates the electrostatic potential function associated with a thermal equilibrium solution. Unfortunately, such results have not been obtained for the full system corresponding to nonzero applied voltages. Indeed, the treatment of the current continuity equations is limited essentially to one dimension.

Chapter 5 discusses approximation methods. Unfortunately, the discussion is primarily a derivation of the commonly used methods, not containing convincing convergence proofs. There is a very good discussion, however, of the difficulties occurring when the simplest centered averages are used for the carrier densities in the continuity equations.

This book is a good complement to that of S. Selberherr [1], providing much of the needed detail of the mathematical methods, particularly the discretization methods. I expect that it will be helpful indeed to a considerable number of readers.

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1. S. SELBERHERR, *Analysis and Simulation of Semiconductor Devices*, Springer-Verlag, Vienna and New York, 1984.

25[65–06].— D. F. GRIFFITHS & G. A. WATSON (Editors), *Numerical Analysis*, Pitman Research Notes in Mathematics Series, Vol. 140, Longman Scientific & Technical, copublished in the U.S. by John Wiley, New York, 1986, vi + 262 pp., 24 cm. Price $24.95.

These are the proceedings of the 11th Dundee Biennial Conference on Numerical Analysis held at the University of Dundee June 25–28, 1985. They contain the complete versions of 16 invited lectures, as well as the titles of 80 contributed talks. The range of topics covered is quite broad.

W. G.

26[53–01, 68U05].—J. A. GREGORY (Editor), *The Mathematics of Surfaces*, The Institute of Mathematics and its Applications Conference Series, Vol. 6, Clarendon Press, Oxford, 1986, xi + 282 pp., 24 cm. Price $49.00.

From the Preface: "This book contains the proceedings of the conference 'The Mathematics of Surfaces' organized by the Institute of Mathematics and its Applications and held at the University of Manchester from 17th–19th September, 1984.

The main aim of the conference was to consider mathematical techniques suitable for the description and analysis of surfaces in three dimensions, and to consider the application of such techniques in areas such as 'computer-aided geometric design'.

The papers range from those of an introductory nature to ones of a more advanced or specialist character.

The book begins with expository papers on the basic mathematical tools of computational geometry, classical differential geometry, parametric representations for computer aided design and differential forms. Further papers deal with algorithms for multivariate splines, recursive division techniques, surface-surface intersections, principal surface patches including cyclide surfaces, N-sided patches, Gaussian curvature and shell structures, and flexible surface structures."

W. G.

27[76–06, 76–08].—K. W. MORTON & M. J. BAINES (Editors), *Numerical Methods for Fluid Dynamics II*, The Institute of Mathematics and its Applications Conference Series, New Series, No. 7, Oxford Univ. Press, Oxford, 1986, xv + 679 pp., 24 cm. Price $95.00.

This volume is based on the proceedings of a conference held in Reading in April 1985. The purpose of the conference was to review recent advances in mathematical and computational techniques for modelling fluid flows. The emphasis is on various forms of discretization (particle, spectral or vortex models, finite difference and finite element approaches, and alternative choices of dependent variables), adaptive modelling, and the solution of systems of linear and nonlinear equations arising in discretized models of fluid flow. There are two sections: the first containing 14 invited papers, arranged in the order in which they were presented at the conference, the second containing 23 contributed papers arranged in the same way.

W. G.

28[65A05].—HERBERT E. SALZER & NORMAN LEVINE, *Supplement to Table of Sines and Cosines to Ten Decimal Places at Thousandths of a Degree*, Applied Science Publications, New York, 1986, 68pp., $23\frac{1}{2}$cm. Price $3.50.

This supplement to the authors' table of sines and cosines, reviewed in [1], consists of two appendices following an introductory note.

Appendix I presents a detailed proof that the computational error in linear inverse interpolation by any method does not exceed the tabular uncertainty error, as stated on pages xi–xii in the original table.

Appendix II consists of a table of decimal values of $\sin x$ in floating-point form to 10S for $x = 0°(0.001°)5.740°$, which correspond to the values of $\cos x$ for $x = 90°(-0.001°)84.260°$, as noted in the title of the table. As a partial check on the accuracy of this table, the reviewer successfully compared every tenth entry with the corresponding entry in [2].

The introductory note explains why linear interpolation in the supplementary table yields accuracy to ten significant figures, which in particular represents a gain of four significant figures beyond that obtained from the sine values at the beginning of the original table. Also included in this note is a list of all known corrections in the original work. Most of these have been previously reported [1], [3].