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].

The authors have herewith completed tables that together yield decimal values of sine and cosine to 10S accuracy everywhere, using only linear interpolation.

J. W. W.

1. Review **35**, *Math. Comp.*, v. 17, 1963, pp. 304–305.

2. NATIONAL BUREAU OF STANDARDS, *Table of Sines and Cosines to Fifteen Decimal Places at Hundredths of a Degree*, Applied Mathematics Series, No. 5, U. S. Government Printing Office, Washington, D. C., 1949.

3. Table Erratum **604**, *Math. Comp.*, v. 43, 1984, p. 346.

29 [11R23].—REIJO ERNVALL & TAUNO METSÄNKYLÄ, "Tables of the Iwasawa λ-invariant," 107 pages of computer output deposited in the UMT file.

These tables were prepared in connection with the work [1] which appears elsewhere in this issue. They contain the components of the λ^--invariant of $Q(\zeta_p, \sqrt{m})$, where p and m range through the following values (m squarefree):

$$\begin{aligned} p &= 3 \quad \text{and} \quad -3235 \leqslant m \leqslant 3454, \\ p &= 5 \quad \text{and} \quad -5000 < m \leqslant 3147, \\ p &= 7 \quad \text{and} \quad -3002 \leqslant m < 1000, \\ p &= 11 \quad \text{and} \quad -1000 < m < 500. \end{aligned}$$

The computations were carried out on the DEC-20 computer at the University of Turku.

AUTHORS' SUMMARY

1. REIJO ERNVALL & TAUNO METSÄNKYLÄ, "A method for computing the Iwasawa λ-invariant," *Math. Comp.*, v. 49, 1987, pp. 281–294.