Curriculum vitae of Friedrich Ludwig Bauer

ARTICLE *in* LINEAR ALGEBRA AND ITS APPLICATIONS · SEPTEMBER 2006

Impact Factor: 0.94 · DOI: 10.1016/j.laa.2006.07.001

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Linear Algebra and its Applications 417 (2006) 299–300
LINEAR ALGEBRA AND ITS APPLICATIONS
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Preface

Curriculum vitae of Friedrich Ludwig Bauer

Friedrich Ludwig Bauer was born on 10 June, 1924 in the Bavarian city of Regensburg, Germany. In 1946 he entered the Ludwig-Maximilian University in Munich, where he studied mathematics, physics, astronomy, and logic. He graduated in 1949, having completed the state teacher examination. After two years as a teacher, he returned to the university, where he was a teaching assistant to Professor Bopp and received his Ph.D. in 1952. He went on to the Technische Hochschule of Munich, where he served as a teaching assistant to Professor Sauer. On receiving his habilitation in 1954, he advanced to the position of Privatdozent. In 1958 he moved to the University of Mainz as an associate professor. In 1962 he returned to the Technische Hochschule of Munich as a full professor, a position he held until 1989.

Bauer's earliest scientific work was in physics. However, he soon became fascinated by the use of computers in science and then by computers in general. His contributions reflected almost all aspect of this burgeoning area: numerical algorithms, rounding error analysis, computer architecture and arithmetic, programming languages, logic, and the mathematical foundations of numerical analysis.

He was one of the developers of the innovative programming language ALGOL. With Klaus Samelson, he invented the stack, a fundamental data structure, for which he later received the IEEE Computer Pioneer award.

The focus in this volume is on Bauer's contributions to numerical linear algebra, which were made between the years of 1954 to 1975. During this time he was in close contact with Alston Householder, Jim Wilkinson, Wallace Givens, George Forsythe, and many others who made important contributions to the field. He was a regular contributor to Householder's Gatlinburg meetings, which in those days was the main forum for the exchange of ideas in the area. Bauer's contributions included matrix algorithms for linear systems and eigenvalue problems, continued fractions and the transformation of nonlinear sequences, and rounding error analysis. He, along with Householder, pioneered the use of norms in matrix analysis. In particular, he introduced the concept of the field of values subordinate to a norm – a notion that also turned out to be useful in functional analysis.

After 1975, Bauer devoted most of his efforts to the science of informatics, also known as computer science. He was among the first to view the area as an engineering discipline, and he is rightly regarded as the father of informatics in Germany.

0024-3795/$ - see front matter
doi:10.1016/j.laa.2006.07.001

In recent years he has been increasingly interested in the history of mathematics and computer sciences – especially cryptography. He is the initiator for the mathematics exhibit in the Munich German Museum and continues to publish articles in the area.

Bauer has received many distinctions acknowledging his various contributions. He is a member of the Bavarian Academy of Science, the Deutsche Akademie der Naturforscher Leopoldina, and a corresponding member of the Austrian Academy of Sciences. He has received honorary doctorates from the University of Grenoble, the University of Passau, and the University of the Armed Forces in Munich.

Bauer is married to Dr. Hildegard Bauer-Vogg and has five children: Gertrud Josefine, Martin Alston, Margret Elisabeth, Ulrich Alexander and Bernhard Klaus.

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