

**IFIP
Congress '94**

**13th World Computer Congress
IFIP Congress '94**

**Computer and Communications Evolution
- The Driving Forces -**

Hamburg, Germany
August 28 – September 2, 1994
CCH Congress Centrum Hamburg

Track 3: Social Impacts of Computers and Communications

**Stream A:
International Developments**

To judge the rapid change in technologies and applications, it is worthwhile to listen to the few remaining **pioneers** and understand how they conceived these technologies. **Konrad Zuse** (on architectures, past and present), **Heinz Zemanek** (on formal methods), and **M. V. Wilkes** (EDSAC) made early foundations in their areas. Some developments reach far back in history, such as data communication concepts (Gerard Holzmann) or mechanical calculators (Bai Shangshu, Klaus-Dieter Graf). With developments in different countries (Gyözö Kovacs), it is essential to learn more about history of ICT (JAN Lee). In conjunction with a workshop on **European Pioneers in Computing** (held by GI), early machines and paintings of pioneers (Zuse, Kaemmerer) will be publicly displayed at Congress' entrance.

**Aug 30, 1994
Tuesday Morning**

Session: History of Informatics I

11:00 – 12:30

A Past and Present View on Computer Architecture

Invited Speaker: K. Zuse, Hünfeld, Germany

Early Foundations of Formal Modeling and Language Specification:

Vienna Development Method (VDM) and Vienna Definition Language (VDL)

Invited Speaker: H. Zemanek, Tech. Univ. Vienna, Austria

From Batch to Interactive: The Evolution of Computing Systems 1957 – 1969

P. Cerruzzi, Smithsonian Museum, Washington, USA

Tuesday Afternoon

Session: History of Informatics II

14:00 – 15:30

Data communications: The First 2500 Years

Invited Speaker: G.J. Holzmann, AT&T Labs, USA

About the first Hungarian Computer: M-3

Invited Speaker: G. Kovacs, John von Neumann Society, Hungary

Why We Study History of Computing

Invited Speaker: J. Lee, Virginia Tech, Blacksburg VA, USA

Session: History of Informatics III

16:00 – 17:30

The EDSAC-Origins and Design Decisions

M.V. Wilkes, University Cambridge, UK

Calculating Machines in China and Europe in 17th Century: The European View

Invited Speaker: K.-D. Graf, Free university of Berlin, Germany

Calculating Machines in the Palace Museum in Beijing

Invited Speaker: Li Di, Hohot, China and Bai Shangshu, Beijing, China

On Basic Concepts of Early Computers in Relation to Contemporary Computer Architectures

R. Rojas, Free University of Berlin, Germany

Workshop MD: European Pioneers in Computing

Where are the roots of evolution, from which our program controlled computers and programming languages were developed, and who are their epoch-making pioneers? – Fundamental ideas came from Charles Babbage, but his machine did not work, and it took more than a century before the first automatic computer came in use. The computers we know today, their mechanical and electrical parts as well as programming languages, have many inventors. It will be a very special event that European representatives of the very first days of the computer will be present at the GI-workshop. Among them Konrad Zuse, who built the famous Z3 in 1941, which is acknowledged as the first working program-controlled computing machine.

First calculating machines will be shown in an accompanying exhibition.

Program Committee:

- Chair: H. Flessner, University of Hamburg, Germany
K. Brunnstein, University of Hamburg, Germany
W. Coy, University of Bremen, Germany
F. Krückeberg, University of Bonn, Germany
- Exhibition: H. Flessner, University of Hamburg, Germany
F. Genser, Pc-Software GmbH, Düsseldorf, Germany
K. Pauli, ZDB, Bonn, Germany

Thursday Morning

Session: Historical Machines and Programming Languages

09:00 – 10:30

Developments in Göttingen (G1 – G3)

H. Billing, Garching, Germany

Developments of Early Computers in Dresden (D1 – D4)

N.J. Lehmann, Dresden, Germany

Motivations for Computer Developments under Difficult Conditions

H. Zemanek, Vienna, Austria

Continued

11:00 – 12:30

PLANKALKUEL – the First Format and Algorithmic Programming Language

K. Zuse, Hünfeld, Germany

Early Developments in Munich (PERM)

R. Piloty, Darmstadt, Germany

On the Genesis of Algorithmic Languages

F.L. Bauer, Munich, Germany

Thursday Afternoon

Session: Early Applications

14:00 – 15:30

OPREMA – a Relay Computer for Optical Computing

J. Jänke, Jena, Germany

Early Applications of Zeiss ZRA1 in Chemistry and Engineering Fields

I. Kerner, Dresden, Germany

Early Developments and Investigations in Parallel Computing

W. Händler, Erlangen, Germany

Session: International Developments

16:00 – 17:30

The Early British Computer Projects

M.V. Wilkes, St. John's College, London, UK

John von Neumann – A Hungarian Born Computer Pioneer

G. Kovacs, Budapest, Hungaria

Early French Computers: Technology Transfer and Innovation (1955 – 1966)

P. Mounier-Kuhn, L. Nolin, Paris, France

European Pioneers Seen From a Trans-Atlantic Perspective

J.A.N. Lee, Virginia Tech, USA