The Charles Simonyi, Academia Europaea, JvNCS/NJSZT Symposium:
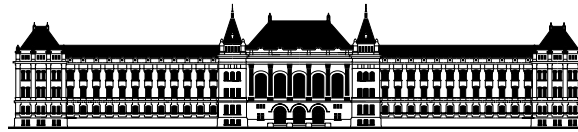
GRAND CHALLENGES IN INFORMATICS

Budapest, 19–20 September 2006

Opening Session Agenda

- Ákos Detrekői

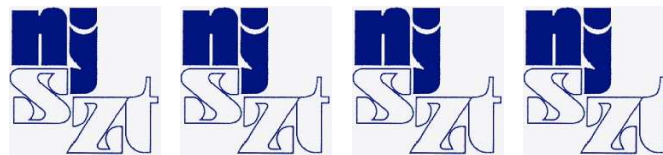 Former Rector of Budapest University of Technology and Economics

  President of the Natl. Council for Comm. and Information Technology

- Dines Bjørner

  Chairman of Academia Europaea's Informatics Section

- Introducing István Alföldi and Gabriella Aranyosné
  The NJSZT: John von Neumann Computer Society

Ákos Detrekői

Former Rector of Budapest University of Technology and Economics

President of the Natl. Council for Comm. and Information Technology

Welcome: Dines Bjørner

- Welcome.

- The main organiser of this event is AE/IS:
  The Informatics Section of Academia Europaea.

- My name is Dines Bjørner. I currently hold the chair of AE/IS.

- First chairman was Sir Tony Hoare.

- AE/IS is but one of 16 Academic Sections of AE.

- AE/IS's charter includes the propagation of awareness of the classical and emerging disciplines of informatics and their interfaces to other fields of science and humanities.

- Some of you here today and tomorrow will be confronted with concepts of computer and computing science that are new to you.

- We hope you will all return home refreshed and inspired.

Today and Tomorrow

- There will be full morning and afternoon **sessions** both days.

- Talks will be 35+ mins. long with 5+ mins. for **brief** question/answers.

- We offer morning and afternoon **refreshment breaks** both days. 10:30–11:00 and Tue.: 15:30–15:45, Wed.: 15:30–16:00,

- We offer **luncheon** both days, in two quick sessions: 12:30–13:15 and 13:15–14:00

- There are AE/IS Members and Committee Meetings this afternoon from 5:30 pm onwards.

- There is a **banquet** tonight, all are invited:

  ⋆ Banquet boat leaves at **20:00 sharp**.

  ⋆ Details in your hand-outs and on the bulletin board outside.

  ⋆ If you have not done so, **please register** during breaks.

Sponsors
∃∀: Int∃ntion∀l Software

- Symposium would not possible but for a generous, private gift from:
  - ⋆ Dr. Charles Simonyi.

- A great Hungarian, a US citizen, soon a space traveller!

- Spent some years in Denmark, in the 1960s.

- Read the Web pages of Int∃ntion∀l Software for fascinating info.

Sponsors (CONTINUED)
∃∀: Int∃ntion∀l Software (CONTINUED)
Words of Greetings from Charles Simonyi

- *warmest regards*

  - ⋆ *"... to the speakers,*
  - ⋆ *to the participants and*
  - ⋆ *to the organizers*

  of this important event

- *that brings talented scholars from Central and Eastern Europe*

- *together with a stellar set of speakers*

- *discussing a wide range of topics*

- *from the speculative through the theoretical*

- *and practical aspect of Informatics ..."*

Sponsors (CONTINUED)
∃∀: Int∃ntion∀l Software (CONTINUED)
Fellowship

• You are all supported by the Simonyi grant!

• This room, the organisational support from NJSZT, the refreshment breaks, the luncheons and tonight's banquet — all is financed by the grant.

• But it is a very special joy to welcome more than 40 participants from

1. Armenia (?),	5. Georgia (?),	9. Moldava,	13. Serbia,
2. Bulgaria,	6. Hungary,	10. Poland,	14. Slovakia,
3. Czech Republic,	7. Latvia,	11. Romania,	15. Slovenia and
4. Estonia,	8. Lithuania,	12. Russia,	16. Ukraine.

• Most travel, hotel and daily costs were covered by the grant.

Sponsors (CONTINUED)
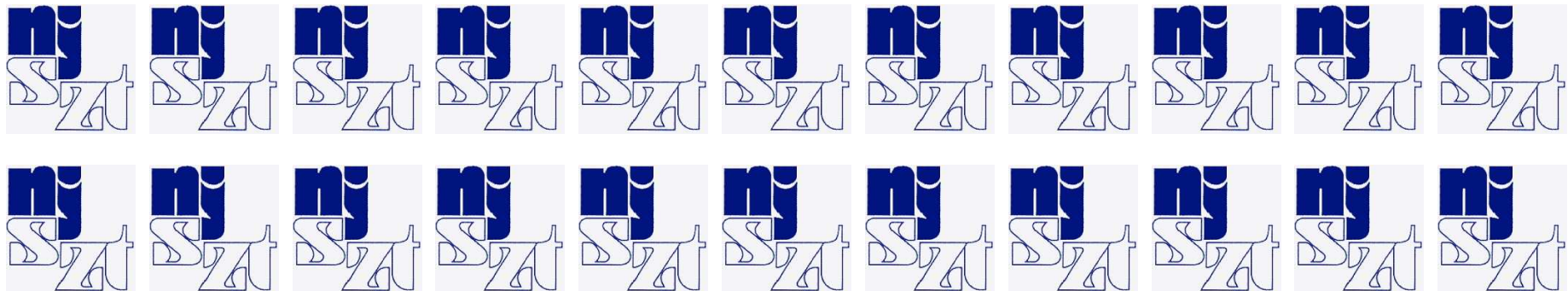## AE: ACADEMIA EUROPAEA

- AE is holding its Annual General Meeting 21–23.9 in Budapest

- This, the GCI event is one of two satellite events.

- AE has provided much needed seed funds that got all this started.

- AE has also provided institutional support and publicity.

- The AE/IS is grateful to the AE Secretariat in London for this.

Sponsors (CONTINUED)

NJSZT: THE JOHN VON NEUMANN COMPUTER SOCIETY

- The NJSZT has a very appropriate name.

  ⋆ I have enjoyed receiving, in 1993, the John von Neumann medal from NJSZT.

  ⋆ So did Charles Simonyi, in 2003, the centennial of John von Neumann.

  ⋆ Péter and I have enjoyed the extraordinary support received from NJSZT.

  ⋆ Fellows, in particular, will appreciate the work of NJSZT.

- I am sure you will all return from this event
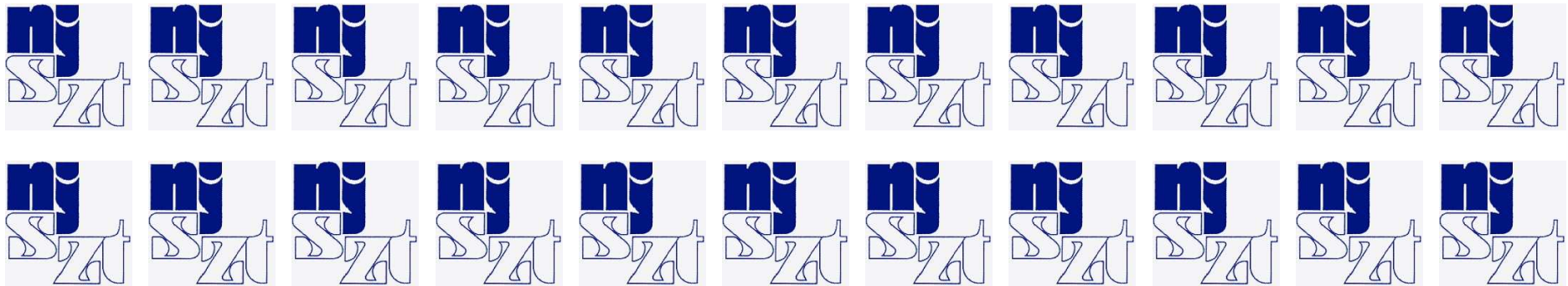 charmed by Budapest — then thank also NJSZT.

Sponsors (CONTINUED)

NJSZT: The John von Neumann Computer Society (CONTINUED)
Introducing

István Alföldi & Gabriella Aranyosné

The NJSZT: John von Neumann Computer Society

HAS: Hungarian Academy of Science

- Many thanks are due to HAS:

  ⋆ The lateness of many Charles Simonyi Fellows

  ⋆ in securing their own visas

  ⋆ lead to desparate last minute situations

  ⋆ whose resolution, between Péter Szeredi, NJSZT and HAS

  ⋆ makes it a pleasure to thank HAS for their help.

- Many thanks.

— also to the Hungarian Visa Consulates in Beograd, Kiev, Kishiniev, Moscow, ...

Co-organiser: Péter Szeredi, BME

- But the real hero is Péter.

  ⋆ Literally hundreds upon hundreds of e-mails have emanated
    from Péter to Charles Simonyi Fellows all over.

  ⋆ Péter's careful attention Fellow travel costs, visa problems, hotel rooms, etc.
    is a main reason they are here — and so many.

  ⋆ Péter's minute monitoring and control of the budget
    is a main reason why we can be so many.

- One thing is a generous gift from one Hungarian
  — without which we could not have offered much,

- another thing is the indefatigable, early morning, late evening
  and also daytime work of this other Hungarian:

Message from Péter Szeredi

- Thank you, thank you, . . .

- But one should not forget yet another person

  - ⋆ who invented this great event,

  - ⋆ invited so many superheros of Computer Science
    (and convinced them to accept the invitation),

  - ⋆ knew whom to ask for money,

  - ⋆ knew how to advertise, and

  - ⋆ with whom it was a real pleasure to work . . .
    (and not only work :-)

- So the real HYPER-hero is this "international" Dane:

The Programme

The **duties** of a **session chair** are as follows:

- **introduce** and "**terminate**" speakers **on time**;

- make sure **questions** are **asked** and **answered**; and

- (Lex de R...) **protect**

    ⋆ the speaker from **abuse** from the **audience**, and
    ⋆ the audience from **abuse** from the **speaker**.

The Programme (CONTINUED)
Tuesday 19 September 2006
Verified Software, I, Morning Session

Chair: Andrzej Tarlecki, MAE

- The Ideal of Program Correctness
  Sir Tony Hoare, MAE   9:00–9:45

- A Million Lines of Verified Code
  Jim Woodcock   9:45–10:30

- Refreshment Break   10:30–11:00

- Have we Learned from the Wasa Disaster (?)
  Jean-Raymond Abrial, MAE   11:00–11:45

- Temporal Annotations and Their Validation
  Amir Pnueli, MAE   11:45–12:30

Chair: Georg Gottlob, MAE

- The German VeriSoft Project
  Wolfgang J. Paul, MAE   14:30–14:45

- Model Checking, Theorem Proving, and Abstract Interpretation
  The Convergence of Formal Verification Technologies
  Thomas Henzinger, MAE   14:45–15:30

- Refreshment Break   15:30–15:50

- Panel: Pan-European Collaboration ?   15:50–17:20

  ⋆ Juhan Ernits, Tallinn   ⋆ Nikolay Shilov, Akademgorodok

  ⋆ Jan Obdrzalek, Brno   ⋆ Virginia Niculescu, Cluj-Napoca

  ⋆ Victor Kuliamin, Moscow

  ⋆ Ivan Levcenko, Kiev   ⋆ Jim Woodcock (**Chair**), York

Wednesday 20 September 2006
Unconventional Grand Challenges, Morning Session

Chair: Juhani Karhumäki, MAE

- Quantum Computing
  Jozef Gruska, MAE   9:00–9:45

- Biocomputing
  Luca Cardelli, MAE   9:45–10:30

- Refreshment Break   10:30–11:00

- From Computable Functions to Definable Systems
  Wolfgang Reisig, MAE   11:00–11:45

- Economics and Game Theory
  Krzysztof R. Apt, MAE   11:45–12:30

The Programme (CONTINUED)
Wednesday 20 September 2006 (CONTINUED)
Computer Mathematics, Afternoon Session

Chair: Maurice Nivat, MAE

- Main Issues of Computer Mathematics
  Henk Barendregt, MAE   14:00–14:45

- Can We Trust Floating-point Numbers (?)
  Paul Zimmermann   14:45–15:30

- Refreshment Break   15:30–16:00

- Computer Algebra
  Joachim von zur Gathen   16:00–16:45

- Formalisation (Proof-checking)
  Laurent Théry   16:45–17:30