

IFAC & Its People

Stephen Kahne
USA



Acknowledgements

- NMOs of F, I, US, DE, ZA, SI, K, NO, CZ, NL, PLRO, RU, CH, TR, UK, AU
- All IFAC officers, many IFAC officials especially Vlacic (& his students)
- IFAC Secretariat – Barbara, Ernestine, Kurt
- IFAC Advisors – Vamos, Gertler, Isermann, Thoma
- The People of IFAC



References

- **IFAC from Idea to Birth**, R. Oldenberger, AUTOMATICA Vol. 5, pp. 697-703. 1969
- **20 Years Old; 20 Years Young**, Luoto, Eykhoff, Oldenberger, Chestnut, Gerecke, Nowacki, Axelby, AUTOMATICA, Vol. 14, pp 49-75, 1978
- **IFAC – 25th Anniversary Day**, Axelby, Vamos, Coales, Chestnut, AUTOMATICA, Vol. 19, pp 325-340, 1983
- **Highlights from the History of IFAC**, Cuenod, Eykhoff, IFAC, 1986
- **A History of the IFAC Congress**, Kahne, IEEE Control Systems, Vol. 16 pp. 10-12, 78-83, 1996
- **IFAC Newsletter 40th Anniversary Issue**, June 1997



Heidelberg

- 1386 University of Heidelberg founded
- 1563 Heidelberg Catechism signed
- 1956 IFAC conceived
- 1982 IFAC's 25th anniversary
- 2006 IFAC's 50th anniversary

History of IFAC, Present and Future of Control
Kahne, Anderson and Astrom



What is history?

"History is just one damned thing after another."

Arnold Toynbee



Controls in the 1950s

- Few journals
- Isolated research groups
- Few international meetings
- Strong leadership from mathematics
- Many ad hoc applications
- Not so many demands for precision



People in the 1950s

M. Cuenod
E. Gerecke
P. Naslin
F. Raymond
J. Loeb
G. Lehmann
G. Nasse
M. Pelegrin
H. Bode
W. Evans
S. Mason
L. Pontryagin
V. Boltyanskii
R. Gamkrelidze
E. Mishchenko
K. Holberg
R. Boiten
Y. Takahashi

M. Veron
P. Nicolau
R. Perret
J. Lagasse
C. Gille
P. Decaulne
M. Ulgur
M. Ozdas
N. Nichols
G. Newton
L. Zadeh
J. Ragazzini
C. Merriam
J. Truxal
G. Thaler
Y. Oshima
K. Kaneshige
H. Sandvold
H. Nyquist

D. Mayne
N. Van Wyk
A. Marino
A. Lepschy
W. Blunden
E. Willoughby
E. Edmiston
P. Brooks
M. Salamon
G. Quazza
R. Bellman
R. Kalaba
L. Neustad
J. LaSalle
S. Lefschetz
N. Weiner
E. Boon
L. deLangen

R. Saunders
R. Kalman
Y. Tsyarkin
A. Young
K. Izawa
H. Tsien
H. Paynter
A. Tustin
R. Aris
C. Verhagen
B. Telegen
Z. Trnka
Z. Izawa
S. Ishigai
A. Nomoto
F. Csaki
T. Isobe



UNESCO bibliography

In 1960 this document listed 757 books on the general topic of control.

Many references to this report but it appears to be lost.



Regelungstechnik Kongress took place in Heidelberg in September 1957 sponsored by the joint control committee of the VDI/VDE and the German government. This was a national meeting and Gerhart Ruppel was secretary of the joint committee.



Day 1- Heidelberg



Gerhard Ruppel



Rufus Oldenberger

The Godfathers of IFAC
September 26, 1956



Day 2- Heidelberg

Representatives from 18 countries meet:

1. Prepare and sign resolution of intent
2. Create a Provisional Committee to plan the governing principles and organizational structure



The Resolution

RESOLUTION

The following undersigned are in favor of an international union of Automatic Control and are prepared to work toward this end in our own country. This union will have the following aims:

1. To facilitate the interchange of information in Automatic Control and to advance this field.
2. To organize international congresses in Automatic Control.

Heidelberg, 27 Sept. 1956

Signed:

Otto Grebe, BRD	Werner Pohlenz, DDR
Rufus Oldenburger, U.S.A.	G. Evangelisti, Italien
A. Tustin, Gt. Britain	J. Boas-Popper, Israel
H. Chestnut, U.S.A.	M. Ajnbinder, Belgique
J. F. Coales, Gt. Britain	Ph. Passau, Belgique
J. H. Westcott, Gt. Britain	Victor Broida, France
H. Märzendorfer, Österreich	Paul Profos, Schweiz
M. Mesarović, Jugoslawien	L.v. Hämos, Schweden
J. M. L. Janssen, Netherlands	V. Strejc, CSSR
Jens G. Balchen, Norway	B. Hanuš, CSSR
Jens R. Jensen, Denmark	A. M. Letov, USSR
Gerd Müller, BRD	Keisuke Izawa, Japan
P. J. Nowacki, Poland	G. Ruppel, BRD
Heinrich Kindler, DDR	D. B. Welbourn, Gt. Britain
R. Oetker, BRD	W. A. Ratscheev, USSR



Provisional Committee - 1



Provisional Committee - 2

- Welbourn



Provisional Committee Dusseldorf April 1957



Basic Concepts

- Truly international
- UN model – One NMO per country as members
- NMO must represent all control interests in all disciplines in its country
- Functions – congresses & info exchange
- Provision for annual fees from NMOs
- Allowed for position of Editor
- 2-year terms of office
- Make it simple



Constitutional Assembly – Paris 1957

- 19 countries represented
- Receive report of Provisional Committee
- Date of IFAC birth – September 11, 1957
- First President to be from the US
- First Congress to be in USSR
- 8 NMOs at first
- Sputnik – October 1957



First Executive Council

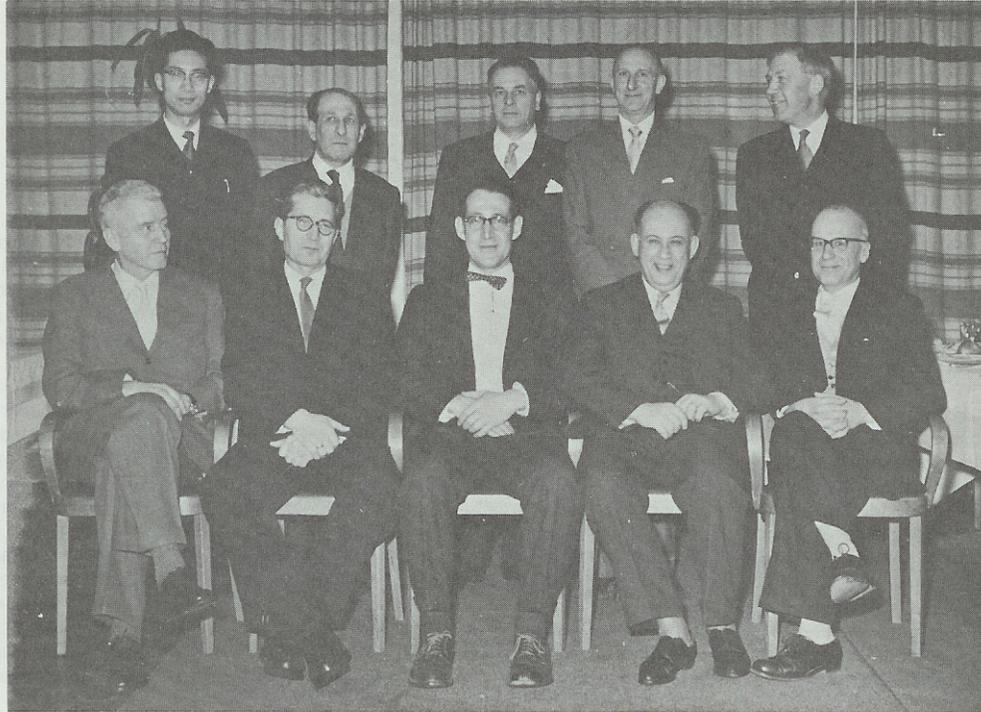


FIG. 2. Executive Council: standing from left to right—Chang, Ajnbinder, Evangelisti, Nowacki, Coales; sitting from left to right—Gerecke, Letov, Chestnut, Broïda, Ruppel (Rome, 1959-03).



First Officers

- President – Chestnut
- 1st VP – Letov
- 2nd VP – Broida
- Treasurer – Gerecke
- Secretary - Ruppel

- Advisory Committee

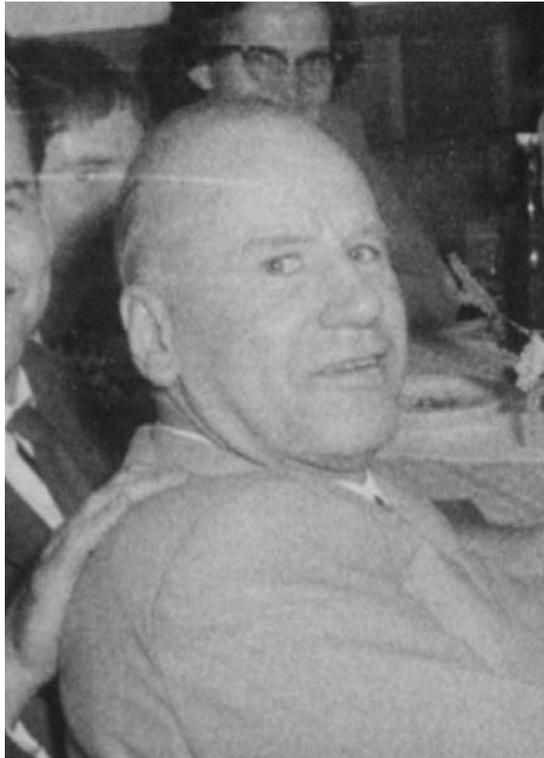


Germany – a special case

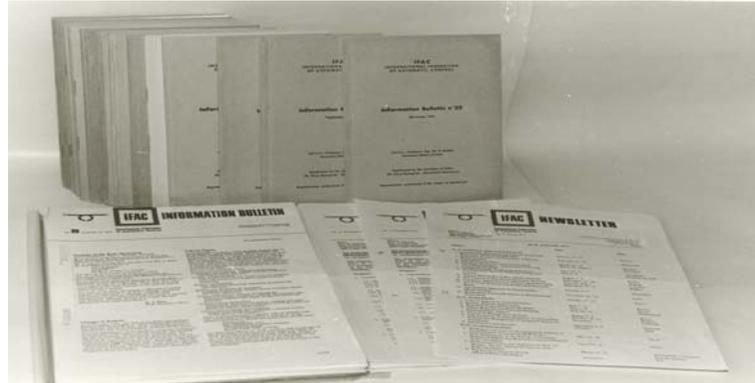
- DDR insisted it was a sovereign state and would have an NMO
- FRD insisted that there was only one German state and thus one German NMO, certainly not from the DDR
- Conclusion: no German NMO, but the FRD would subsidize and host the Secretariat in Dusseldorf, with Ruppel as Secretary.



Secretariat 1958-1972



Secretariat as Publisher

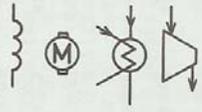
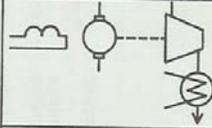
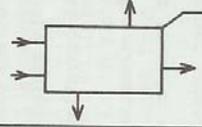
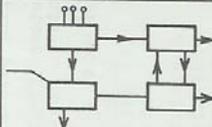
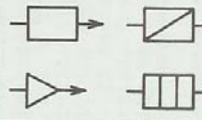
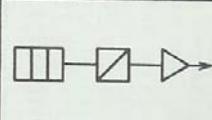
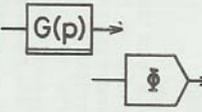
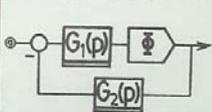
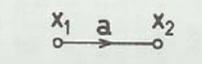
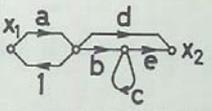


- Honorary Editor – V. Broida 58-66
- IFAC Bulletin – calls for papers, NMO creation
- First Transatlantic commercial jet flight – Oct. 58



From IFAC Bull. in 1960

TABLE I. SURVEY OF GRAPHICAL SYMBOLS AND DIAGRAMS FOR CONTROL SYSTEMS

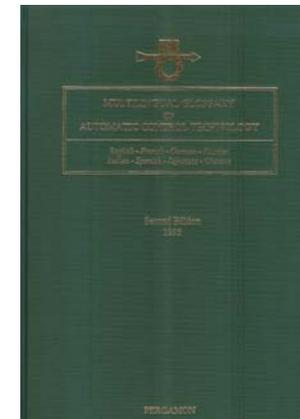
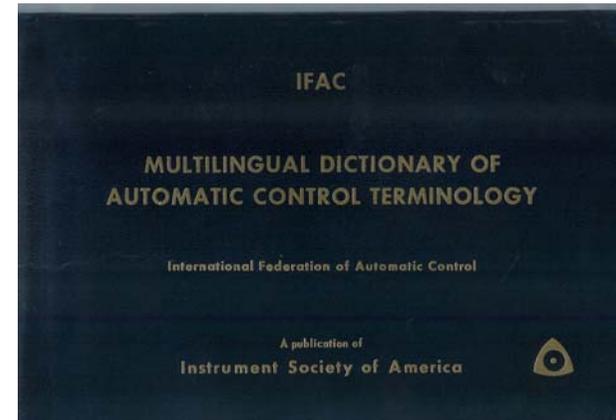
	NO.	DESIGNATION	SYMBOL	NO.	DESIGNATION	DIAGRAM
I	Ia	SYMBOLS FOR COMPONENTS		Ib	SCHEMATIC DIAGRAM	
II	IIa	BLOCK SYMBOL REPRESENTING A PIECE OF EQUIPMENT		IIb	BLOCK DIAGRAM	
III	IIIa	SYMBOLS FOR TRANSFER ELEMENTS		IIIb	SIGNAL FLOW DIAGRAM	
IV	IVa	SYMBOLS FOR TRANSFER ELEMENTS INCORPORATING MATHEMATICAL TRANSFORMS		IVb	SIGNAL FLOW DIAGRAM INCORPORATING MATHEMATICAL TRANSFORMS	
V	Va	SYMBOL FOR AN INFORMATION TRANSFER ELEMENT IN A LINE FLOW DIAGRAM		Vb	LINE FLOW DIAGRAM	

- 28 -



Early Emphasis on Terminology

- English
- French
- German
- Russian
- Italian
- Spanish
- Japanese
- Chinese



Honorary Editors

- Broida 1958 – 1966
- Barlow 1966 – 1969
- Belkowski 1969 -1972
- Eykhoff 1972 – 1975
- Coales 1972 – 1981
- Kahne 1975 - 1981



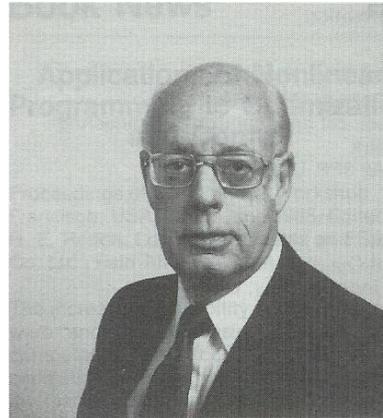
IFAC Publications

- 1958 – 1976: Bulletin, Information, Newsletter, Journals (from 1969), conference proceedings
- 1976 – 2006: Newsletter, single publisher for all journals and most proceedings
- ~2006 - ?: Newsletter, journals, electronic copies for conferences



AUTOMATICA

The First IFAC Journal



IFAC & Its People

AUTOMATICA - 1968



- Robert Maxwell and John Coales
- George Axelby
 - IEEE TAC
 - Founder & 14 yrs as EIC, 48 issues
 - AUTOMATICA
 - 25 yrs as EIC, 150 issues
 - Emeritus EIC 1993



Publications Managing Board Chairmen

- Coales 1976 – 1987
- Thoma 1987 - 1993
- Gertler 1993 – 1999
- Kahne 1999 -



IFAC Journals

AUTOMATICA (1968) – George Axelby, Huibert Kwakernaak, Tamer Basar

CONTROL ENGINEERING PRACTICE (1993) – Mike Rodd, George Irwin, Adolf Glattfelder, Ian Craig

ANNUAL REVIEWS IN CONTROL (1996) – Janos Gertler

J. PROCESS CONTROL (2001) – Tom McAvoy

ENGINEERING APPL. ARTIFICIAL INTELLIGENCE (2001) – Rob Vingerhoeds

MECHATRONICS JOURNAL (2002) – Claudio Melchiorri

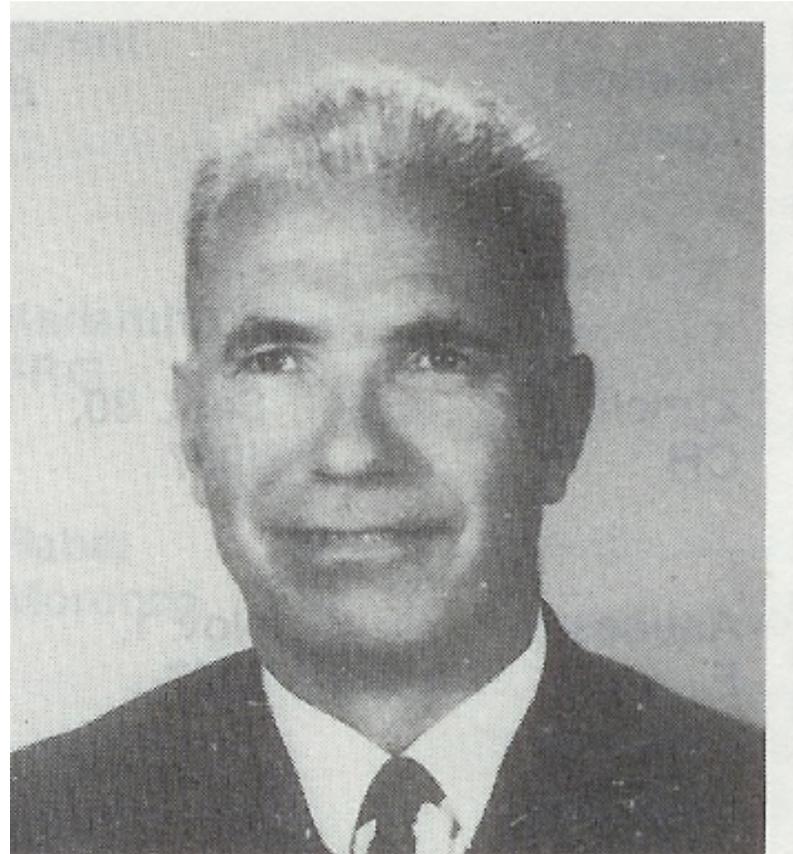


Publications Now

- Annual income from publications now provides approximately half the annual expenses of IFAC.
- Electronic journal article downloads increasing
- Hard copy journal subscriptions declining
- Conference hard copies and CDs do not sell well
- Access to downloads of conference papers needed



Early Treasurers



Recent Treasurers



Meetings of Executive Council

- 1958 Zurich
- 1959 Rome and Chicago
- 1960 Moscow

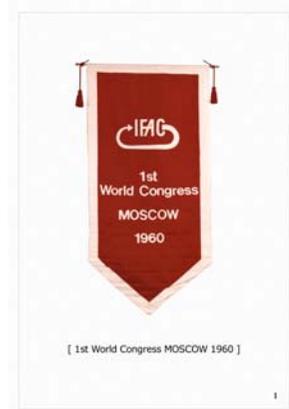


People active in early meetings

- Kokotovic
- Mesarovic
- Vamos
- Balchen
- Leskiewicz
- Gorecki
- Strejc
- Findeisen
- Eckman
- Westcott
- Benes



1960 Moscow



- 1500 attendees, 285 papers, 29 countries
- 23 NMOs, fee US\$30
- Congress motto: "Wide applicability for theory, maximum reliability for components, high efficiency for applications"



IFAC Congress I



Moscow - 1960

"The day has come when we can practically bring into effect within the framework of IFAC our mutual desire to establish scientific contacts with one another ..."

A. Letov

IFAC President

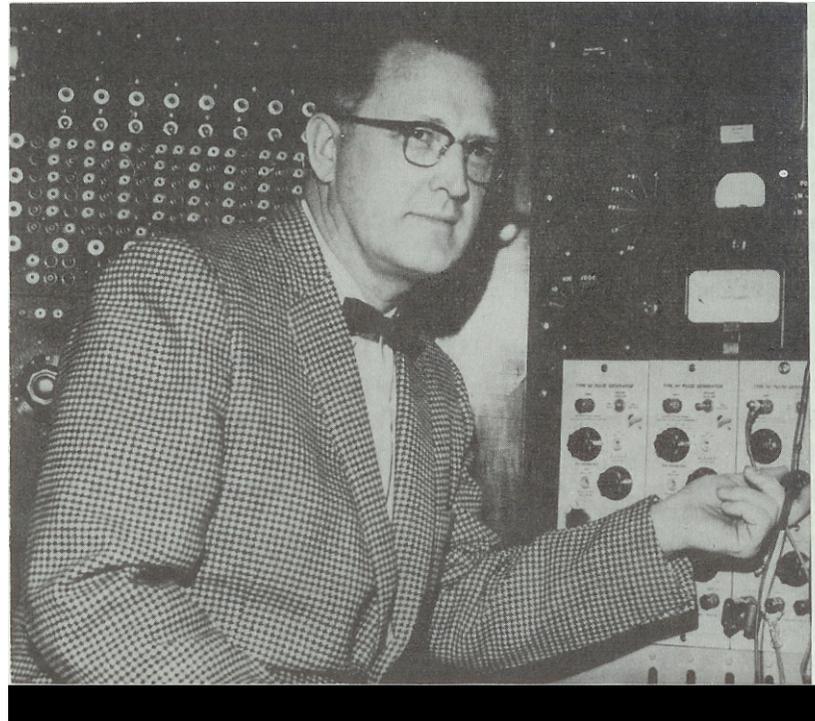


Annual Meetings of Executive Council

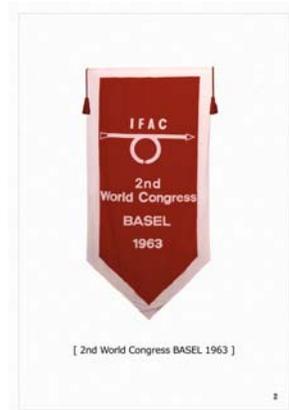
- 1961 Bergen
 - Gerecke to be elected President in Fall 1961 for the term 1961-63
 - 6 TCs existed at that time
 - Decision to move to triennial calendar
- 1962 Cambridge
 - Donald Eckman



Don Eckman 1915-1962



1963 Basel

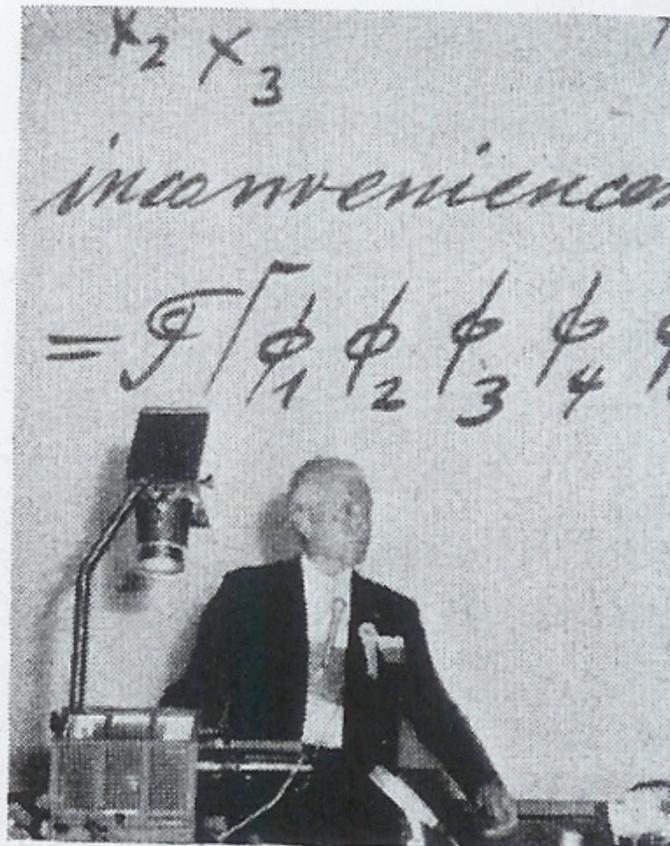


- 1500 attendees, 170 papers
- 27 NMOs, avg. session size 157
- Written and published discussion comments
- Large industrial exhibit



Opening Lecture

Ifac president Eduard Gerecke opens the Congress on 28 August, with a mock-technical address on the theory behind the organization of international congresses. Gerecke told the delegates that the cost of the Congress had amounted to about \$70 000, a third of it contributed by them, another third by the Basle civic authorities, and the remainder shared between the Swiss Government, Swiss industry, and the Swiss Federation of Automatic Control.



1966 London



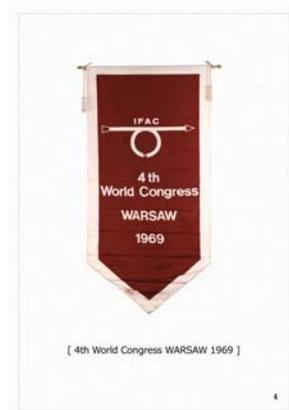
- 1800 attendees, 296 papers
- 31 NMOs
- HRH Prince Phillip opened Congress
- Multilingual "dictionary" about to be published



London Congress



1969 Warsaw



- 1500 attendees, 313 papers
- Round table discussions for first time



Warsaw



FIACC

Five International Associations
Coordinating Committee
(IFAC,IFIP,IFORS,IMEKO,IACA)

Conceived 1971 – died 1992 without a
trace



1972 Paris



- 1300 attendees, 228 papers
- Lively round table discussions – stimulated later interest in IFAC Workshops
- Simultaneous translation and use of rapporteurs not so successful
- First General Assembly including GDR and FRG
- Gerhard Ruppel retires as IFAC Secretary



Politics and Human Rights

- Paris Congress demonstrations about human rights were unusual for IFAC
- Reminded attendees of issues affecting individual contributors, but outside the scope of IFAC



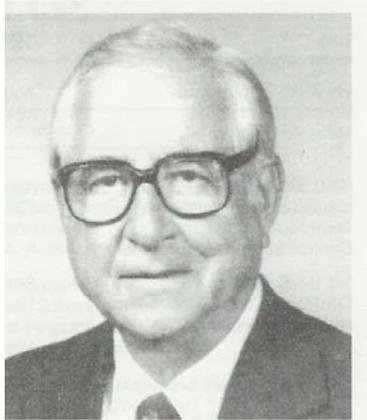
1975 Boston



- 1350 attendees, 347 papers
- Plenary lecture by L. Klein, later Nobel Prize winner in economic sciences
- Broadening of IFAC technical interests
- One publisher concept approved
- Concern about IFAC's financial future



The Banner Secret



Nat Cohn created the idea of the Congress banners only in 1974. Cohn was the NOC Chairman for the Boston Congress.



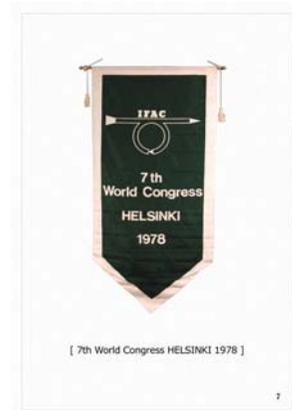
The 1970s was a period of transition for the IFAC Secretariat. After Ruppel and Schroder stepped down in 1972, a replacement was found in Germany. The NMO in Finland agreed to take it on temporarily while Oolevi Luoto was President. Seppo Aarnio and Siipi Saari were Secretaries in 1975 – 1978. A permanent home was sought during the late 1970s.



Secretariat 1975-1978



1978 Helsinki



- 1100 attendees, 294 papers
- New IFAC Constitution being developed



Georgio Quazza 1924 - 1978



Laxenburg Dedication April 1978

- Fred Marguiles
- Janos Gertler
- Austrian Minister for Science & Research Hertha Firnberg
- Uolevi Luoto



Secretariat 1979-1984



Constitutional Changes

1959 First version

1966 Refine first version and codify triennial cycle

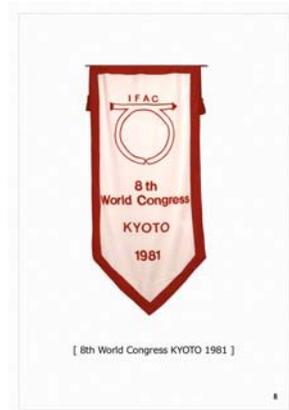
1984 Create 2 Major Boards and Executive Committees, more flexible TC membership and conference activities, publication refinements

1993/94 TB Structure enhanced, add Awards Committee

2000 Less restrictive eligibility for election as President



1981 Kyoto



- First Congress in Asia
- 1433 attendees, 607 papers
- Daily Congress news in local papers



Giorgio Quazza Medal



IFAC & Its People

Quazza Medal Winners

- 1981 John F. Coales
- 1984 Yakov Z. Tsympkin
- 1987 Karl J. Åström
- 1990 Petar Kokotovic
- 1993 Edward J. Davison
- 1996 Alberto Isidori
- 1999 Brian Anderson
- 2002 Lennart Ljung
- 2005 Tamer Basar



Advisors in 1981

- Harold Chestnut
- John Coales
- Ed Gerecke
- Jack Lozier
- Uolevi Luoto
- Vladimir Trapeznikov
- Juri Benes
- Michel Cuenod
- Gerhard Ruppel



IFAC & Its People



Advisors 2006

- Pedro Albertos
- Brian D.O. Anderson
- Jiri Benes
- Janos Gertler
- Gusztav Hencsey
- Rolf Isermann
- Stephen J. Kahne
- Lennart Ljung
- Mohamed Mansour
- Michael K. Masten
- Yoshikazu Sawaragi
- Walter Schaufelberger
- Manfred Thoma
- Tibor Vamos



25th Anniversary

Automatic Control: Present and Future

Larson

Kato

Zemanek

Chestnut

Trapeznikov

Rosenbrock

Pestel

Jensen

Wu

Evstafiev



25th Anniversary - Heidelberg



Government Scientific Leaders



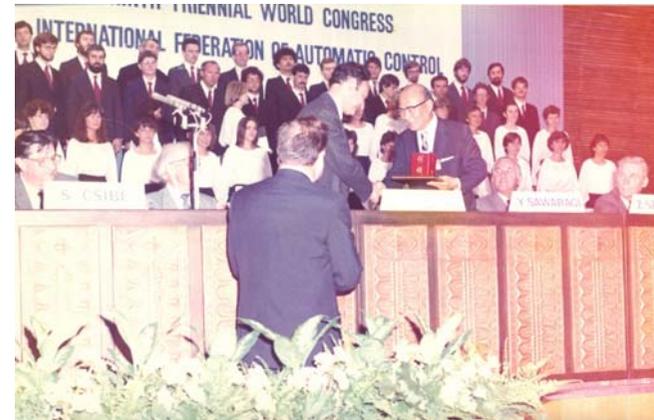
1984 Budapest



- 1157 attendees, 544 papers
- New IFAC Secretary – Gusztav Hencsey
- New constitution adopted by General Assembly
- 41 NMOs now



Budapest Congress



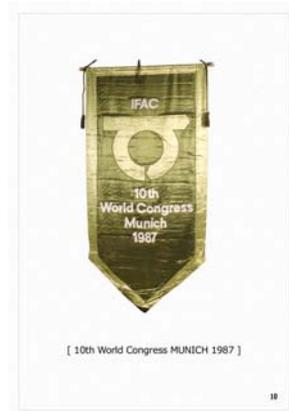
Secretariat – 1984 - 2005



1985 Boston Council



1987 Munich



- 1432 attendees, 583 papers
- Michel Cuenod Fund started
- John Coales retires as PUMB Chairman
- Korean Association of Automatic Control joins IFAC



Master Plan Symposia

The new structure of the technical arm of IFAC in the 1984 Constitutional changes led Lennart Ljung as VP & TB Chair to propose this idea.

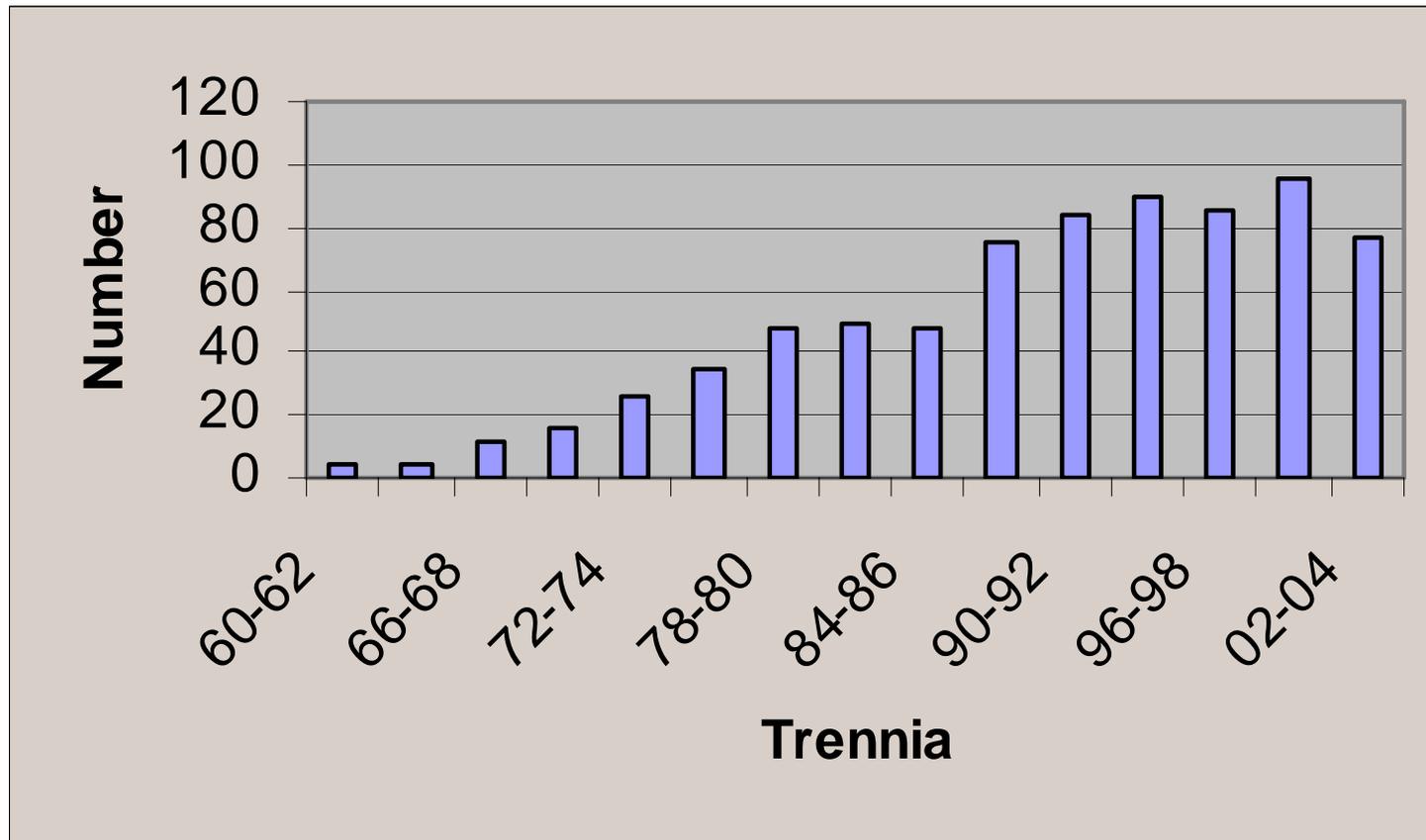


Master Plan Symposia Founders

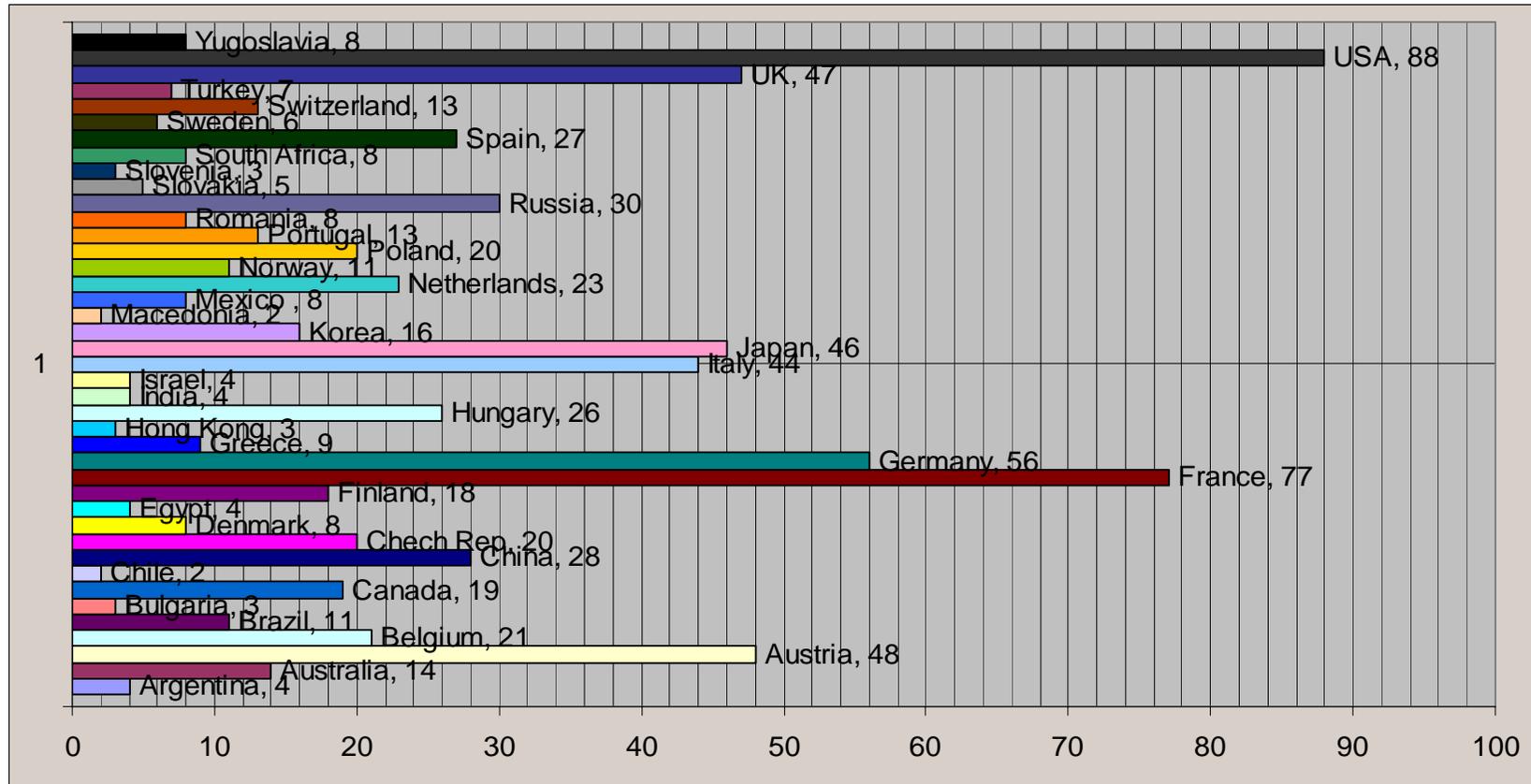
Advanced Control in Chemical Processes (ADCHEM)	Kummel
Advances in Automotive Control	Guzzella, Kiencki
Advances in Control Education (ACE)	Rabins
Automated Systems Based on Human Skill and Knowledge	Emspak, Butera
Automatic Control in Aerospace	DeBra, Seltzer
Computational Methods in Economics & Financial Systems	Rustem
Computer Applications in Biotechnology	Dochain, Perrier
Cost Oriented Automation (COA)	Albertos
Human-Machine Systems (HMS)	Johannsen, Martensson, Stassen, Sheridan
Information Control in Manufacturing (INCOM)	Oshima, Nemes Puente Morel
Intelligent Autonomous Vehicles (IAV)	Harris, Halme, Salichs
Intelligent Components and Instruments for Control Applications (SICICA)	Albertos, Ollero
Large Scale (Complex) Systems	Guardabassi, Titili, Straszak, Mansour
Mechatronic Systems	Isermann
Mining, Mineral and Metal Processing (MMM)	O'Shea, Niemi, Uronen, Paiuk
Modelling and Control of Biomedical Systems	Cobelli, Carson
Non-Linear Control Systems (NOLCOS)	Fliess, Oustaloup, Allgower
Power Systems and Power Plants	Miller, Pai, Van Wyk, Maffezzoni, DyLiacco
Robot Control (SYROCO)	Saridis, Nicosia
Robust Control Design (ROCOND)	Goodwin, Geromel, Keviczky
System Identification (SYSID)	Eykhoff
System Structure and Control	Strejc, Kucera
Telematics Applications	Schilling, Roth
Transportation Systems	Lauber, Genser, Papageorgiou



Technical Events

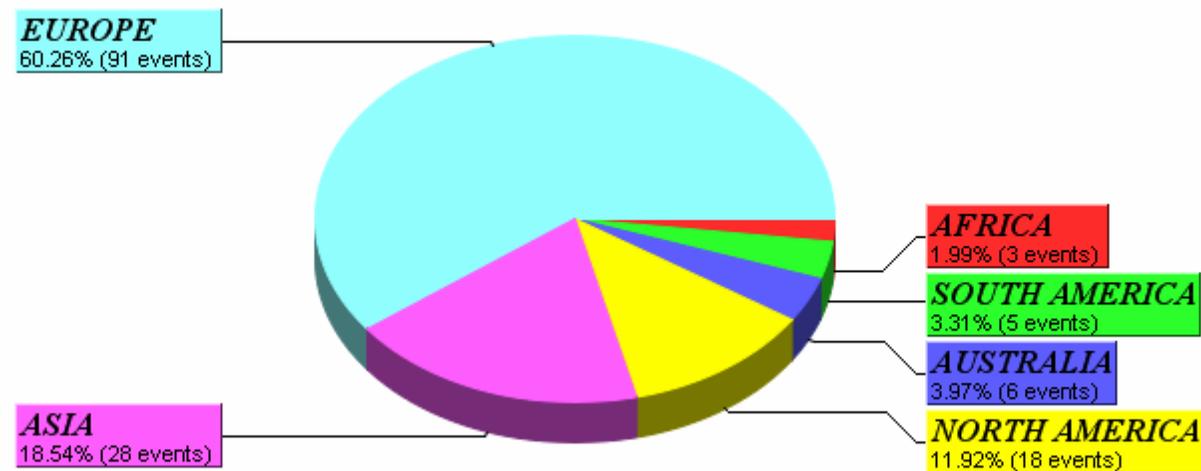


Events by NMO

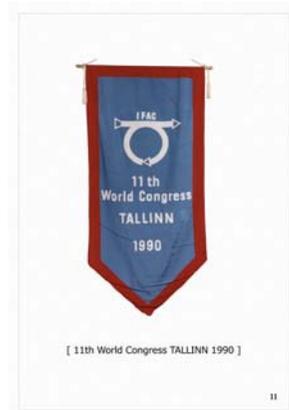


From Technical Board pages in IFAC Web Site

Continental Division of IFAC Masterplan Events 1956-2005



1990 Tallinn



- 1072 attendees, 594 papers
- Times of great change in Estonia
- Outstanding Services Awards – first time
- Plan to affiliate IFAC with ECC, ACC, future ASCC
- IFAC Affiliates program started



Affiliates

- Personal membership - no
- Newsletter address updates
- Personal subscriptions to journals
- Mailings lists for Calls for Papers
- 3500 affiliates by 1993



1993 Sydney



- 1256 attendees, 1200 papers
- 180 no-shows
- 3500 Affiliates now
- CEP successfully launched



TB Expansion and Realignment

- Potential role of Coordinating Committees
- From 81 entities to 45 TCs and 9 CCs



1996 San Francisco



- 1998 attendees, 1500 papers
- First Congress Proceedings on CD
- Best Poster paper awards for first time
- Started IFAC officials training program



Nichols Medal 1996

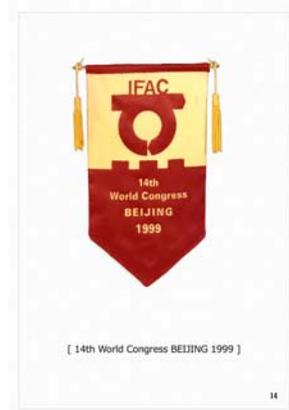


- 1996 Prof. Jürgen Ackermann
- 1999 Dr. Gunter Stein
- 2002 Dr. Carl Nett
- 2005 Dr. William F. Powers

Fukuoka - 1997



1999 Beijing



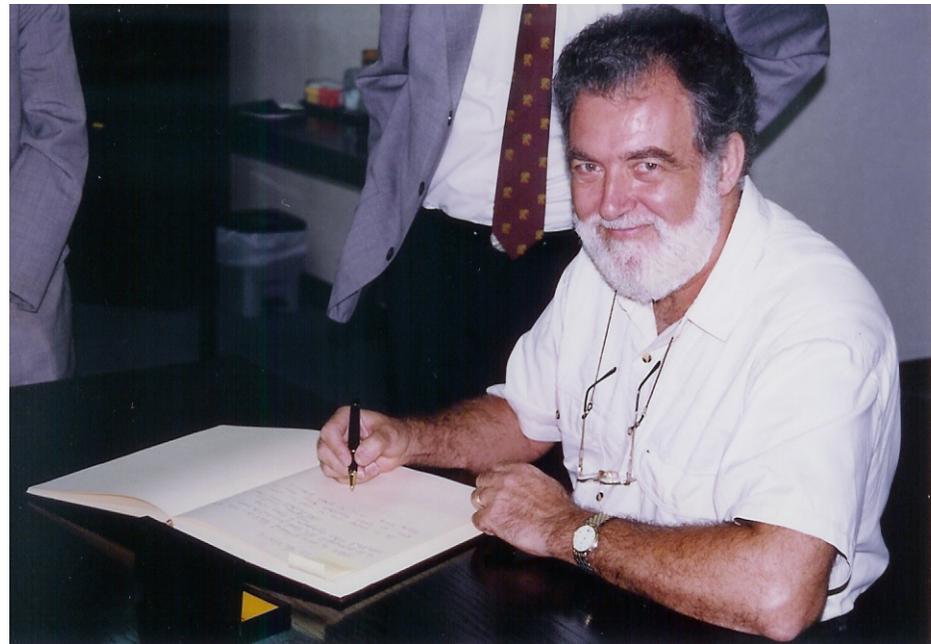
- 1466 attendees, 1556 papers
- Chestnut Textbook Prize endowed
- Publications: 80 books, 40K pages in 3 years



Beijing



Hong Kong - 1999



2002 Barcelona



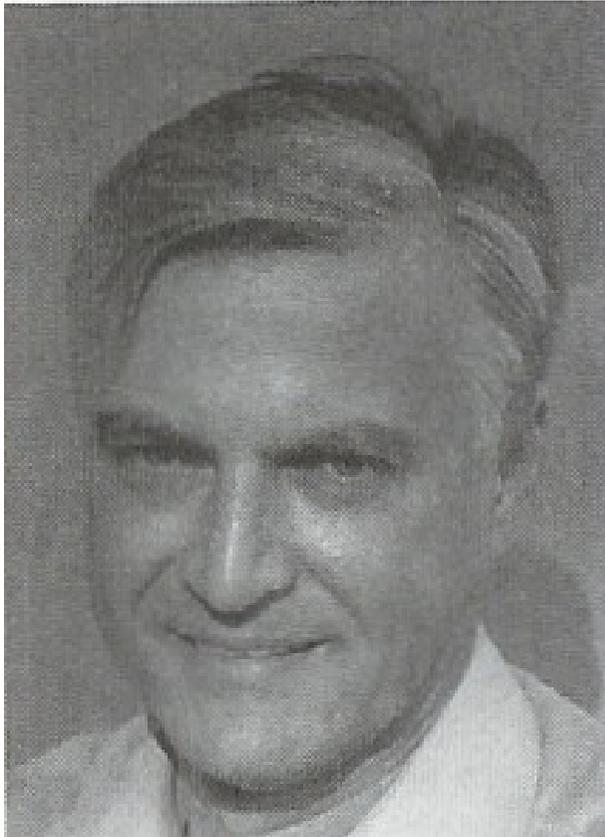
- 2011 attendees, 1757 papers
- Approved 50th anniversary in Heidelberg
- IFAC web site now very active
- Triennial milestone reports
- IFAC Fellow award planned



Barcelona → Prague



Secretariat – 2005-present



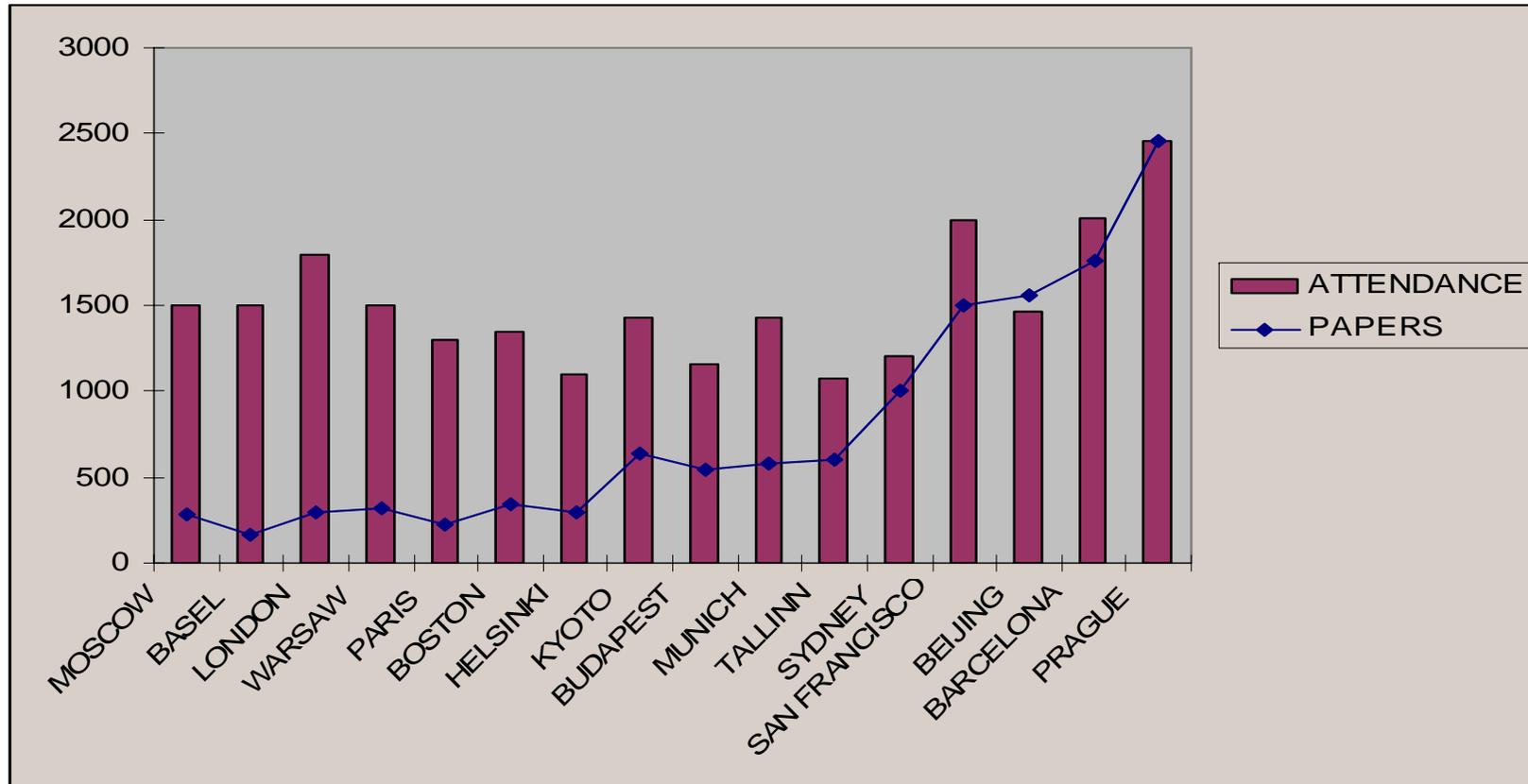
2005 Prague



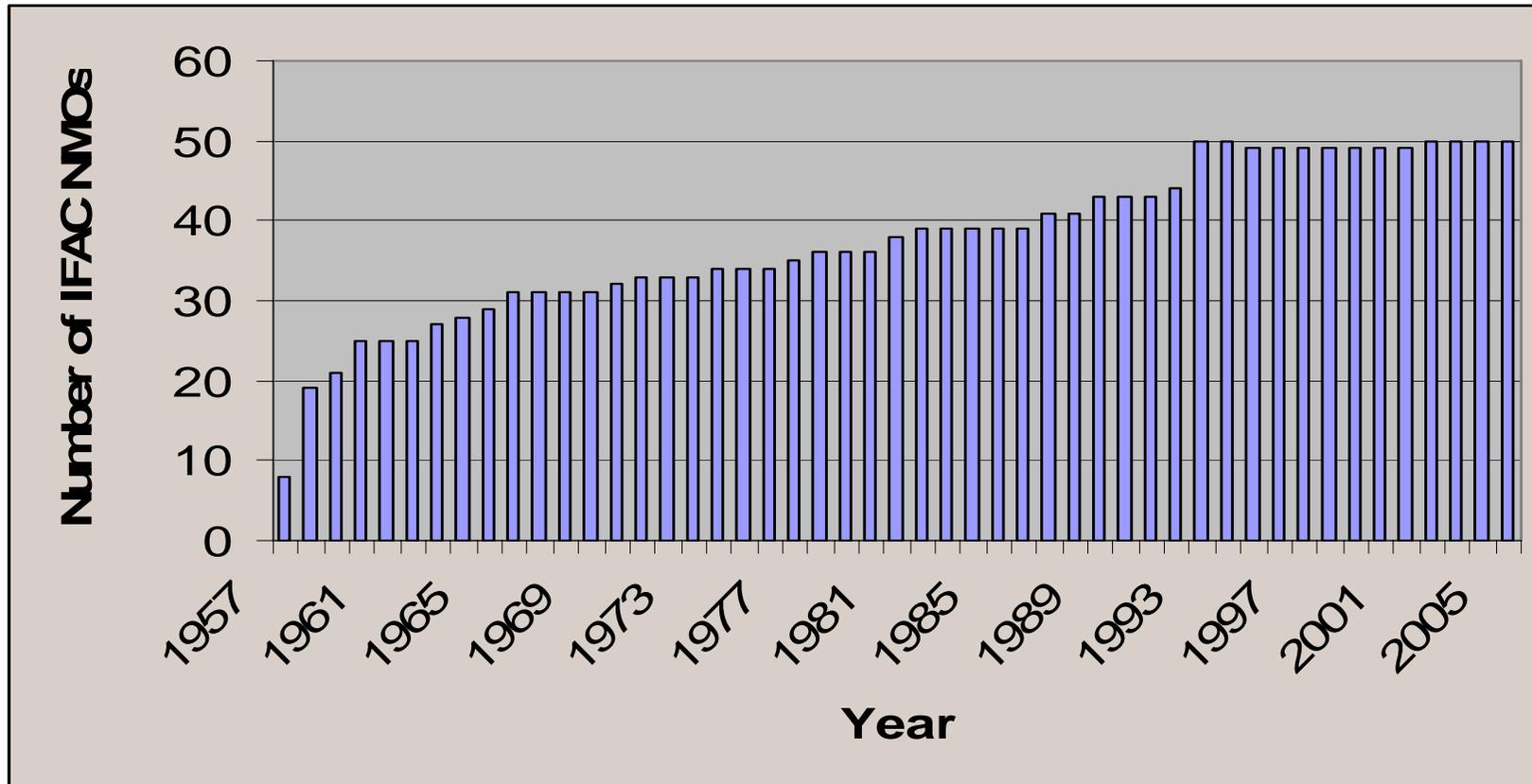
- 2462 attendees, 2456 papers
- First presentation of Fellows Awards



50 years of Congresses



International Representation



IFAC50

- Initiated in 2001 to prepare for 50th anniversary
- Consists of two parts:
 - Projects: To lay a strong foundation for the future of IFAC and attract young people to IFAC activities - Gertler, Vlacic, Kahne
 - Celebration: Isermann



IFAC50 Projects - 1

1. Establish and maintain both online and Secretariat based history archives
2. Create additional online resources of general interest in the control field
3. Encourage NMOs to document their history (Italy, S. Africa, Slovenia,...)
4. Create an online controls timeline reminding us of our heritage



IFAC50 Projects - 2

5. Create a book reflecting a sample of existing control textbooks in the 1950s
6. Develop funds to help young people contribute to IFAC technical activities



IFAC Foundation

Created this year with Foundation Board
led by Pedro Albertos

First major donation to the IFAC
Foundation – US\$500,000



Professor Wook Hyun Kwon

IFAC President 2005-2008

Professor Pedro Albertos

IFAC President 1999-2002

Chairman IFAC Foundation



IFAC is its People

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