



*The Abdus Salam
International Centre for Theoretical Physics*



1930-4A

**Joint ICTP-IAEA Advanced Workshop on Model Codes for Spallation
Reactions**

4 - 8 February 2008

Introduction and Aim of the Meeting

Gunter Mank
*IAEA Division of Physical & Chemical Sciences - Physics Section
Vienna
Austria*

Joint ICTP-IAEA Advanced Workshop on Model Codes for Spallation Reactions

ICTP, Trieste, Italy

G. Mank, D. Filges, S. Leray, Y. Yariv
Local Organizer: C. Tuniz



*Atoms for Peace: The First Half Century
1957-2007*

4 February 2008

Outline

IAEA interest in accelerators:

- **Education and Training**
- **Nuclear Applications**
- **Accelerator Driven Systems**
- **Structural Materials and Fuel**

Activities:

- **Coordinated Research Projects**
- **Technical Meetings and Workshops**
- **Training and Schools**
- **Conferences**



IAEA

Atoms for Peace: The First Half Century and the next fifty years

1957-2007

International Atomic Energy Agency (IAEA)

- **Founded 1957**
- **in Vienna, Austria**
- **149 Member States**
- **6 Divisions**
- **2200 Staff**
- **About 300 MEuro Budget**
- **<http://www.iaea.org/>**



The Nobel Peace Prize 2005



"for their efforts to prevent nuclear energy from being used for military purposes and to ensure that nuclear energy for peaceful purposes is used in the safest possible way"



International Atomic Energy Agency (IAEA)

1/2 of the prize
Vienna, Austria
Founded in 1957



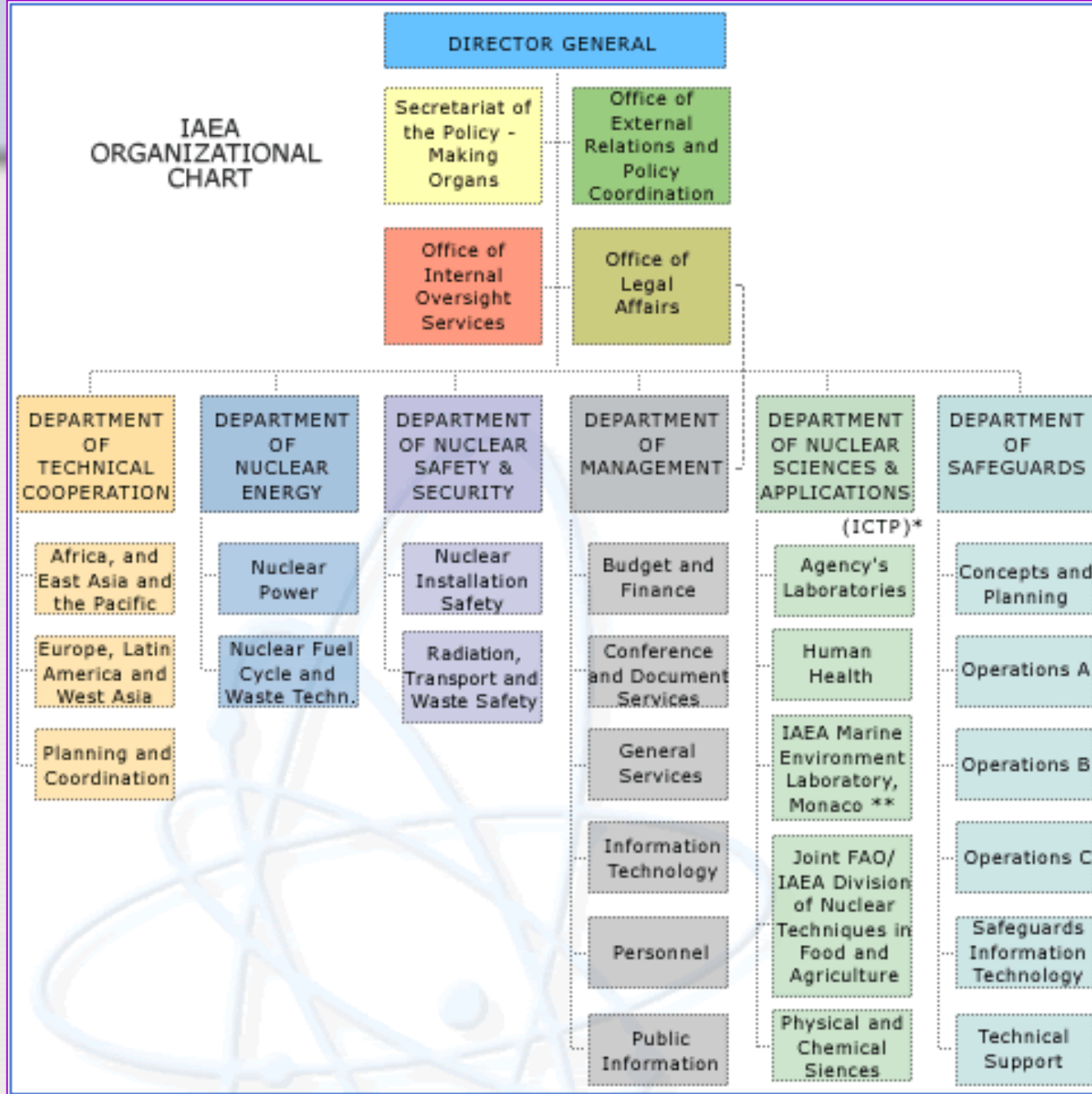
Mohamed ElBaradei

1/2 of the prize
Egypt
Director General of IAEA
b. 1942

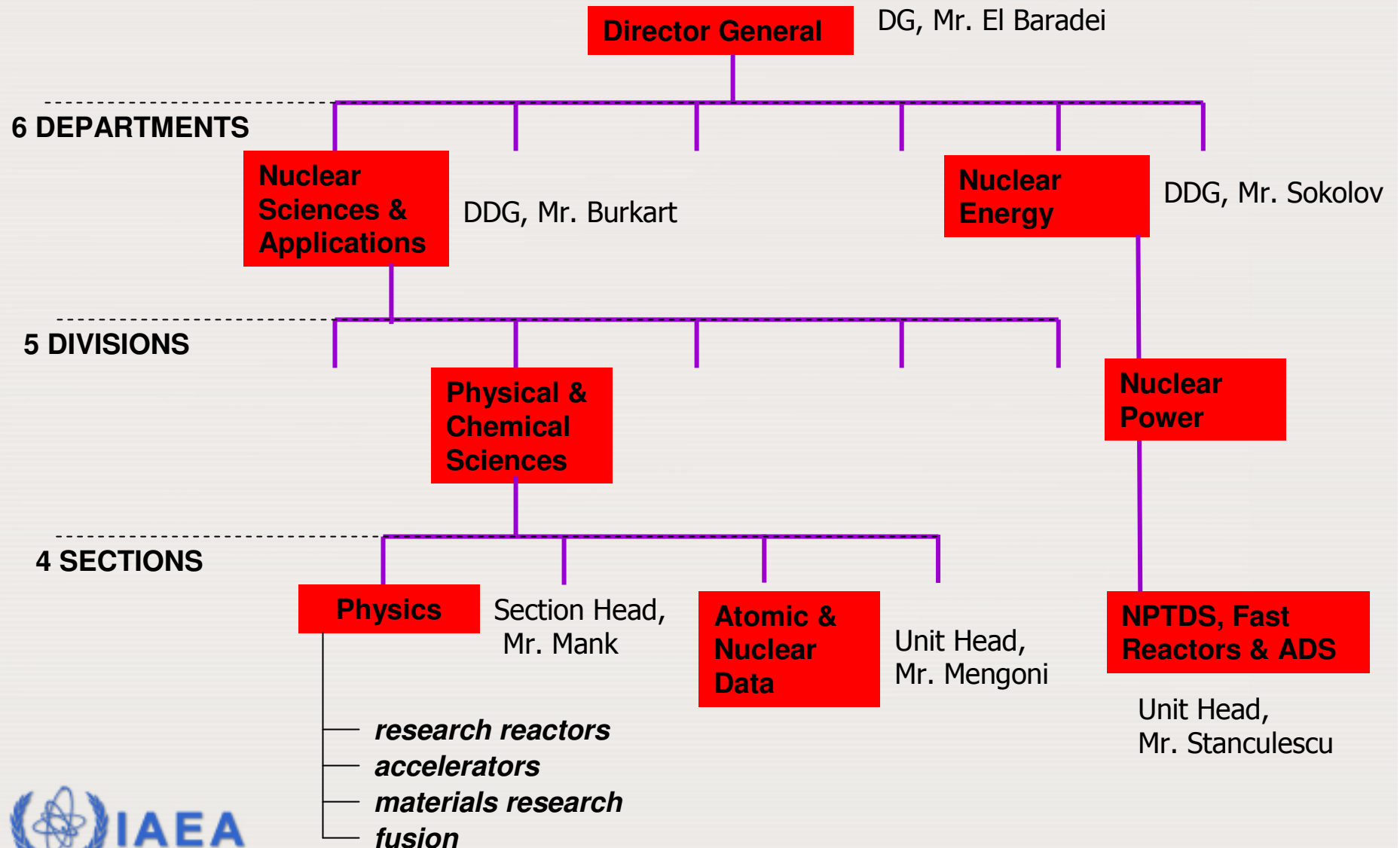
Pillars of the IAEA

- **Promoting Science & Technology**
the world's focal point to mobilize peaceful applications of nuclear science and technology for critical needs in developing countries
- **Promoting Safeguards & Verification:**
the world's nuclear inspectorate
- **Promoting Safety and Security**
helps countries to upgrade nuclear safety and security

IAEA ORGANIZATIONAL CHART



IAEA structure



Objective

This Workshop will facilitate experts and competent practitioners to better understand the physical basis, approximations, strengths and weaknesses of the currently used spallation codes.

Presentation of relevant basic experimental data with emphasis on accuracies, detector efficiencies, filters and thresholds will create basis for code validation and inter-comparison.

Outcomes

The workshop will help:

- To understand in depth, the physics of INC, QMD models and de-excitation models
- to point out the reasons of their respective successes or deficiencies;
- To define an agreed set of experimental data to be used in validation and inter-comparison of the models;
- To promote the exchange of information among researchers in the field;
- To identify areas of international cooperation in the field.



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Outcome

The agreed set of experimental data will be proposed as an international benchmark and reviewed by experts in a **follow-up activity**.

Results presented and discussions held will be helpful in aspects of target design, experimental and detector layout in general to account amongst others for e.g. the FAIR facility planned at GSI, Darmstadt.



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1957-2007

Agenda

	Monday		Tuesday		Wednesday		Thursday		Friday	
	INC models	chair: G. Mank	INC/PE models	chair: S. Leray	QMD models	chair: D. Filges	De-excitation models	chair: S. Mashnik	De-excitation models	chair: Y. Yariv
9:00 - 9:45			CEM	S. Mashnik (LANL, USA)	QMD-Nantes model	C. Hartnack (Subatech, France)	SMM	A. Botvina (INR, Russia)	ABLA	K.H. Schmidt (GSI, Germany)
9:45 - 10:30	Opening: goals of the workshop	D. Filges (FZJ Jülich)								
Coffee Break										
11:00-12:30	Generic features of INC models + Isabel	Y. Yariv (Soreq, Israel)	models in FLUKA	A. Ferrari (INFN, Italy)	INC model in PHITS + JQMD	K. Niita (RIST, Japan)	GEMINI	R. Charity (USA)	GEM	
Lunch										
14:00 - 14:45			BUU	Z. Rudy (Cracow)	Charged Particle Data	F. Goldenbaum (FZJ, Germany)	Residue Data	Y. Titarenko (ITEP, Russia)	Summary and perspectives (intercomparison description)	S. Leray (CEA, France)
14:45-15:30	INCL	A. Boudard (CEA, France)	INCE models	Discussion	GSI Residue data	J. Benlliure (Santiago univ., Spain)	Residue data	R. Michel (Uni Hannover, Germany)		
Coffee Break										
16h00 - 18h00	IAEA goals of intercomparison	A. Stanculescu, A. Mengoni	Expert meeting on intercomparison	Choice of experimental data (+ neutron data)	Expert meeting on intercomparison	Figures of merit	Expert meeting on intercomparison	Data and result format + general discussion	Closed session (Report)	Directors
	Expert meeting on intercomparison	General goals								
Dinner										
20:30 - 21:45	Reception		Discussion		free		Evening event		free	



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IAEA TEC-DOC, summary report



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