PSAM 7 ESREL '04

FINAL PROGRAMME

International Conference on Probabilistic Safety Assessment and Management

June 14-18, 2004
Hotel Inter-Continental
Berlin, Germany

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Registration Desk and Conference Secretariat

Hours

Sunday, June 13, 2004
15:00 – 21:00

Monday, June 14, until Thursday, June 17, 2004
8:00 – 16:00

Friday, June 18, 2004
8:00 – 13:00

Location
Entrance Area to Potsdam Foyer
Room Tegel

Exhibition

Hours

Tuesday, June 15, until Thursday, June 17, 2004
8:00 – 18:00

Location
Garden Lounges

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CONFERENCE ORGANISED BY

IAPSAM

International Association
for Probabilistic Safety
Assessment and Management

ESRA

European Safety and
Reliability Association

Sponsored by

TÜV Süddeutschland
Swiss Federal Nuclear Safety Inspectorate
Paul Scherrer Institut
AREVA (Framatome ANP)
Basler & Hofmann
Gottlieb Daimler and Karl Benz Foundation
Swissnuclear (Sub-Committee on Nuclear Energy)
VGB PowerTech

In Cooperation with

ABS Consulting
European Commission, Joint Research Centre, Ispra
European Safety, Reliability & Data Association
US Federal Aviation Administration
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Previous Conferences

Previous PSAM Conferences

- **PSAM:** Beverly Hills, USA, February 1991
  General & Technical Programme Chair: G. E. Apostolakis
- **PSAM II:** San Diego, USA, March 1994
  General Chair: M. G. Stamatelatos
  Technical Programme Chair: G. E. Apostolakis
- **PSAM III** (in conjunction with **ESREL ´96**):
  Crete, Greece, June 1996
  General Chair: I. A. Papazoglou
  Technical Programme Chair: P. C. Cacciabue
- **PSAM 4:** New York City, USA, September 1998
  General Chair: R. A. Bari
  Technical Programme Chair: A. Mosleh
- **PSAM 5:** Osaka, Japan, November 2000
  General Chair: S. Kondo
  Technical Programme Co-Chairs: S. Kondo, K. Furuta
- **PSAM 6:** Puerto Rico, USA, June 2002
  General Chair: E. J. Bonano
  Technical Programme Chair: A. L. Camp

Preceding ESREL Conferences

- **ESREL ´90:** Brest, France
- **ESREL ´91:** London, UK
- **ESREL ´92:** Copenhagen, Denmark
- **ESREL ´93:** Munich, Germany
- **ESREL ´94:** La Baule, France
- **ESREL ´95:** Bournemouth, UK
- **ESREL ´96** (in conjunction with **PSAM III**): Crete, Greece
- **ESREL ´97:** Lisbon, Portugal
- **ESREL ´98:** Trondheim, Norway
- **ESREL ´99:** Munich, Germany
- **ESREL ´00:** Edinburgh, UK
- **ESREL ´01:** Turin, Italy
- **ESREL ´02:** Lyons, France
- **ESREL ´03:** Maastricht, The Netherlands

Scope of the Conference

Following the first well-received joint conference in 1996, this year´s Conference will mark the second occasion of the joint meeting of two successful conference series which are held regularly. The *International Conference on Probabilistic Safety Assessment and Management (PSAM)* has returned to Europe and is being organised jointly with the 2004 edition of the yearly *European Safety and Reliability Conference (ESREL)*.

The objective of the joint PSAM 7 – ESREL ´04 Conference is to provide a forum for the presentation and discussion of the latest developments in methodology and application of probabilistic and reliability methods in various industries. Innovations in methodology as well as practical applications in the areas of probabilistic safety assessment and of reliability analysis are presented and discussed during the Conference. The aim of these applications is the optimisation of technological systems and processes from the perspective of a risk-informed safety management while also taking economic and environmental aspects into account. This joint Conference in particular aims at the promotion and enhanced communication, the sharing of relevant experience and integration of approaches not only among the various industries but also on a truly global basis by bringing together leading experts from all over the world.

Nearly 600 papers in over 160 sessions will be presented; the full papers are included in a six volume set of Conference Proceedings as well as on a CD published by Springer-Verlag London Ltd. Moreover, panel and round-table discussions take place as well as plenary sessions given by invited speakers.

Each registered participant will receive a set of Proceedings and/or a CD at Registration. Additional copies may be purchased from Springer-Verlag London Ltd. Further information can also be obtained from Cornelia Spitzer or Ulrich Schmocker.

Conference Events

Keynote Address

Some Remarks on Risk Assessment and Safety Management
Speaker: *Prof. Gisbert Freiherr zu Putlitz, Gottlieb Daimler and Karl Benz Foundation, Head of Board of Management; Former Rector of the University of Heidelberg*
Monday, June 14, 9:40-9:55 »Potsdam I«

Invited Lectures

Global Prospects for Nuclear Power Generation
Speaker: *Dr. Ralf Güldner, AREVA, Framatome ANP GmbH, Managing Director; Wolfgang Breyer, AREVA, Framatome ANP GmbH, Director Corporate Communications*
Tuesday, June 15, 8:00 – 9:00 »Potsdam III«

Communication in High Risk Environments
Speaker: *Prof. Rainer Dietrich, Humboldt University of Berlin, Head of GIHRE Collegium*
Wednesday, June 16, 8:00 – 9:00 »Potsdam III«

Landscapes of Risk: A New Approach to Risk Assessment and Management
Speaker: *Prof. Ortwin Renn, University Stuttgart*
Thursday, June 17, 8:00 – 9:00 »Potsdam III«

Reliability and Safety Assessment in Offshore and Process Industries
Speaker: *Dr. Lars Bodsberg, SINTEF Industrial Management, Research Director*
Friday, June 18, 8:00 – 9:00 »Potsdam III«

Risk Informed Regulation – Move Towards Realism
Speaker: *Dr. Ashok Thadani, US NRC, Office of Research, Director*
Friday, June 18, 11:40 – 12:20 »Potsdam III«

Special Sessions

Opening Plenary by Senior Advisory Board
QRA, RAM and Safety Management in Decision Making: Accomplishments, Challenges, and Future Prospects
Chair: *Ioannis A. Papazoglou, Demokritos*
Monday, June 14, 9:55 – 10:35 »Potsdam I«

Closing Session: Insights and Lessons Learned
Pressing Issues, Emerging Ideas, and Future Challenges Presented by Young Generation Programme Participants
Chair: *Dirk Proske, Dresden University of Technology*
Friday, June 18, 11:10 – 11:40 »Potsdam III«

Other Conference Events

Welcome Reception
Sunday, June 13, 18:30 – 20:30
On Sunday evening, a Welcome Reception will be held at the Conference Hotel in the Potsdam Foyer and in the room Potsdam III. The Conference Technical Programme starts on Monday morning with the Opening Session to be held in the room Potsdam I.

Exhibition
Tuesday, June 15, until Thursday, June 17, 8:00 – 18:00
An Exhibition will take place during the Conference in the Garden Lounges, where coffee will also be served during the breaks. Books and journals relevant to the Conference topics will be displayed and offered here. The exhibitors will highlight companies´ achievements, products, and services and give demonstrations of – among others – the latest risk assessment software and equipment.

IAPSAM and ESRA General Assembly
Tuesday, June 15, 18:00
After the technical sessions on Tuesday, the IAPSAM and ESRA General Assemblies will take place in the Conference Hotel. The IAPSAM General Assembly is intended to provide the opportunity for the conferees and the IAPSAM Board of Directors to exchange ideas on future directions for the PSAM conferences; with the ESRA General Assembly the members of the association hold their annual meeting.

Luncheon
Tuesday, June 15, 12:40 – 14:00
The traditional Conference Luncheon will take place in the Hotel Inter-Continental in the room area Potsdam.

Gala Dinner
Wednesday, June 16, 18:00
On Wednesday, we will leave the hotel by bus and go to the German Museum of Technology Berlin (GMTB) for the Conference Gala Dinner.

Since 1982, a highly diverse technology museum of international repute has sprung up in Berlin's old and new centre: the *Deutsches Technikmuseum Berlin (DTMB)*.

The museum continues the tradition of the reputable technology museums to which Berlin had been home until World War II. The *Gleisdreieck* location is also of historical importance: this is where *Anhalter* freight station, the rail depot with two circular locomotive sheds and the factory buildings of a company specialising in markets and cold stores were located. On completion of all development phases (planning), the building will cover an exhibition area of over 50,000 square metres and will be one of the largest technical museums in the world.

The new extension of the GMTB is a trendsetting museum building of international standing. The prominent five-storey building is located across from *Potsdamer Platz*; its architecture forms the unmistakable landmark of the *Gleisdreieck* forum for culture and technology.

The Gala Dinner will be served on the 3rd floor of the new extension. The reception also covers the 5th floor which has a spectacular view. The terrace on the 4th floor with the famed mounted plane, a "Raisin Bomber", is also accessible to attendees. Further, guided tours for interested participants will be offered.

Farewell Social
Friday, June 18, 12:40 – 14:00
The Closing Session marking the end of the Conference will take place in the room Potsdam III and is scheduled to finish at about 12.40 to be concluded with the traditional Farewell Social in the Potsdam Foyer.

Conference Venue

The Conference takes place at the Hotel Inter-Continental in the centre of Berlin, next to the famous shopping mile *Kurfürstendamm*. Many attractions are a short walk from the Conference Hotel, or can easily be reached by public transport.

In the direct neighbourhood you can find the Zoological Garden, Germany's oldest zoo, and with 19 000 species, it represents one of the world's most bio-diverse.

The Conference Hotel is located in the district *Tiergarten*, Germany's political centre. Here you will find embassies, the presidential office *Schloß Bellevue*, the chancellor's new office *Bundeskanzleramt* and the *Brandenburger Tor*. Visiting the federal parliament, the renovated *Reichstag*, provides the most spectacular view from the top of the glass dome that is open to the public and attracts thousands of visitors each day (last admission 22:00, open until midnight).

For the last 10 years Berlin has been going through a breathtaking change that is still continuing. The city is cosmopolitan, lively, and diverse, offering a broad variety of cultural, entertainment and leisure activities.

Since the opening of the Wall, the *Potsdamer Platz* has changed from neglected wasteland to Berlin's new centre. A complete new and modern quarter was built: shops, restaurants, cinemas, a casino and a musical theatre that attracts local citizens as well as tourists just as the impressive architecture and the Sony Centre.

2004 has been heralded as the "Year of Museums" by Berlin. Among these are world cultural treasures covering such diverse fields as the *Pergamon Altar* (Museum Island), fine art (Old National Gallery) and technological knowledge *(Deutsches Technikmuseum Berlin)*, where our Conference Gala Dinner takes place.

Some highlights at a glance:

Opened in 2003, the **Jewish Museum Berlin** is one of the most visited museums. The silvery, zinc-faced building with its sheer, apparently windowless extension is an impressing example of modern architecture. The exhibition recounts the history and life of German Jews and gives vivid reminders of the Holocaust. Tip: On Mondays, the museum is open until 22:00, the guided tour starts at 19:00.

At present, the **New National Gallery** close by *Potsdamer Platz* shows 200 selected masterpieces from the New York Museum of Modern Art (called MoMA). You can get VIP-tickets and information at the MoMA-Shop in the Conference Hotel. The Museum is open until 18:00, on Thursday and Friday until 22:00 (closed Mondays).

The well-known representative of art-photography Helmut Newton decided to move his entire collection to Berlin before his death this year. Since June 3, 2004, the **Museum of Photography** is open to the public. The first exhibition "Sex and Landscapes" is shown in the classicist building opposite the *Bahnhof Zoo*, nearby the Conference Hotel (open until 18:00, closed Mondays).

If you are looking for a guided sightseeing-tour, take the bus which stops near the Conference Hotel (opposite the *Gedächtniskirche*, every 15 minutes). Or take a tour by boat to discover that Berlin has more bridges than Venice. Hourly, a ship starts at the *Corneliusbrücke*, a three minutes' walk from our Conference Hotel. You can cruise along the canals through the government quarter, as well as the historical and modern part of Berlin.

Eventually, a comprehensive and diverse social program is offered including Theatre, Opera, Festivals, Museums, Sightseeing and Excursions; detailed information is available from the Conference Hotel Concierge.

Conference Programme at a Glance

MONDAY, JUNE 14, 2004

Room / Sessions	Tegel Neu A-1 to A-3	Tiergarten I B-1 to B-3	Tiergarten II C-1 to C-3	Tiergarten III D-1 to D-3	Köpenick I E-1 to E-3	Köpenick II F-1 to F-3	Köpenick III G-1 to G-3	Charlottenburg I H-1 to H-3	Charlottenburg II I-1 to I-3	Charlottenburg III J-1 to J-3	Schöneberg K-1 to K-3
9:30	**OPENING SESSION** »Potsdam I« Opening Welcome Cornelia Spitzer; Keynote Address Gisbert Freiherr zu Putlitz; Opening Plenary by Senior Advisory Board; Introduction to the Technical Programme Ulrich Schmocker										
10:45	Coffee Break										
11:10	Human Error Management	PSA Reviews - Approaches and Results	Managing Occupational Safety	International CCF Data Exchange	Safety Functions and Barriers	Approaches and Initiatives in Emergency Response	Analysis and Design of Dependable Software Systems	MC Simulation - Industrial Applications	Legal and Regulatory Aspects of Risk-Informed Decision-Making	Bridges - Reliability Aspects	Aviation - Airplane Crash Risks
12:40	Lunch Break										
14:00	Cognitive Analysis and Simulation	PSA Results - Level 2 and Severe Accidents	Proactive Approaches to Risk Management	Component Failure Databases	Barrier Analysis	Emergency Response - Methods and Simulations	Software Issues in PRA	MC Simulation in Structural Mechanics - Methods and Applications	Integrated Safety Assessment: Utilisation of PSA in Regulatory Procedures	Risk Management and Design of Structures	Aviation - Air Traffic Applications
15:30	Coffee Break										
16:00	Human Factors Applications	PSA Applications - Nuclear and Irradiation Facilities	Risk Management Decisions	Statistical Modelling and Reliability Models	Managing Safety Barriers	Emergency Management Systems and Lessons Learned	Software Testing and Operating Experience	Dynamic Reliability	Risk-Informed Decision-Making in Regulatory Procedures	Fire Analyses and Structures	Maintenance and Optimisation in Aviation and Aerospace

TUESDAY, JUNE 15, 2004

Room / Sessions	Tegel Neu A-4 to A-7	Tiergarten I B-4 to B-7	Tiergarten II C-4 to C-7	Tiergarten III D-4 to D-7	Köpenick I E-4 to E-7	Köpenick II F-4 to F-6	Köpenick III G-4 to G-7	Charlottenburg I H-4 to H-7	Charlottenburg II I-4 to I-7	Charlottenburg III J-4 to J-7	Schöneberg K-4 to K-7
8:00	**PLENARY SESSION** »Potsdam III« Global Prospects for Nuclear Power Generation (Speaker: Ralf Güldner)										
9:10	Current Issues in Human Reliability Analysis (HRA)	Risk Assessment Applications in Various Industries	Specific Risk Management Projects	Modelling of Dependent Failures and Parameter Estimation	Safety Culture Assessment and Analysis	Assessing and Managing Proliferation Risk	Software Development Techniques and Tools	Uncertainty and Dependence Modelling	Risk-Informed Decision-Making Cases I	Workshop: Structural Reliability Analyses: some new challenges I	Panel: Application of Risk Management in Aviation and Space
10:40	Coffee Break										
11:10	HRA Data and Analysis	Risk Assessment - Case Studies	Panel: International Perspectives on the Use of PSA in the Industry…	Data Analysis - Mathematical Methods	Safety Culture Assessment and Comparison	Security and Safeguards - Risk Modelling and Applications	Software Testing and Fault Detection	System Reliability Modelling	Risk-Informed Decision-Making Cases II	Workshop: Structural Reliability Analyses: some new challenges II	International Space Station PRA
12:40	Conference Luncheon »Potsdam«										
14:00		Developments in Seismic PSA	Improving Risk Management Systems	Systems and Maintenance I	Safety Culture and Management	Infrastructure Security Risks	Assessment of Safety-Critical Software Systems I	Reliability Analysis Methods	Methods and Tools to Support Risk-Informed Decisions	Civil Engineering - Methods and Models	Space Systems Risk Assessment and Management
15:30	Coffee Break										
16:00	HRA - Current Use of Simulators	External Events PSA	Risk Management Special Issues and Modelling	Systems and Maintenance II	Round table: Barriers Against Accidents, Misuse and Sabotage		Software Reliability Modelling	System Design Optimization	Materials and Waste: Strategy and Decision-Making	Civil Engineering - Reliability Methods and Stochastic Analysis	Risk Assessment for Satellites and other Space Applications
18:00	IAPSAM General Assembly							ESRA General Assembly			

WEDNESDAY, JUNE 16, 2004

Room	Tegel Neu	Tiergarten I	Tiergarten II	Tiergarten III	Köpenick I	Köpenick II	Köpenick III	Charlottenburg I	Charlottenburg II	Charlottenburg III	Schöneberg
Sessions	A-8 to A-11	B-8 to B-11	C-8 to C-11	D-8 to D-10	E-8 to E-11	F-10 to F-11	G-8 to G-10	H-8 to H-11	I-8 to I-10	J-8 to J-11	K-8 to K-11
8:00	**PLENARY SESSION** »Potsdam III« Communication in High Risk Environments (Speaker: Rainer Dietrich)										
9:10	Human Reliability Analysis - Insights from Practice	Level 2 PSA Modelling	Progress in Risk Management Methods I	Uncertainty and Sensitivity Analysis - Physical Phenomena	Organisational Learning in Nuclear Safety		Software and Hardware Diversity and Failure Dependence	Test and Test Planning	Development of PRA Standards I	Structural Safety Issues	Advanced Space Systems and Safety Engineering Challenges
10:40	Coffee Break										
11:10	Panel Session: HRA Data Issues	Fire Risk Methods	Progress in Risk Management Methods II	Uncertainty and Sensitivity Analysis - Methodology II	Safety and the Management of Change		Software and Human Factors	Reliability Applications	Development of PRA Standards II	Structural Reliability	Risk Assessment for Space Transportation and Launch Vehicles
12:40	Lunch Break										
14:00	Health Care - PRA Approaches	Fire Impact and Consequences	Rail and Road Transport - Reliability and Risk Modelling I	Uncertainty and Sensitivity Analysis - Methodology I	Modelling Organisational Factors	Maintenance Management	Assessment of Safety-Critical Software Systems II	Application Framework for Risk Assessment	Risk Aspects of Electrical Engineering Standards	Optimising Strategies for Inspection of Structures	Panel: PRA Methodology Development Needs & Trends for Space Applications
15:30	Coffee Break										
16:00	Health Care - Human and Organisational Issues	Panel: IC-Systems as part of critical infrastructures	Rail and Road Transport - Reliability and Risk Modelling II		Facilitating the Communication of Risk Issues	Risk-Informed Inspection Prioritisation and Planning		Risk and Reliability - Theory and Frameworks		QRA - Roads and Tunnels	Risk Assessment in the Chemical Industry I
18:00	Conference Gala Dinner at German Museum of Technology Berlin (GMTB)										

THURSDAY, JUNE 17, 2004

Room	Tegel Neu	Tiergarten I	Tiergarten II	Tiergarten III	Köpenick I	Köpenick II	Köpenick III	Charlottenburg I	Charlottenburg II	Charlottenburg III	Schöneberg
Sessions	A-12 to A-15	B-12 to B-15	C-12 to C-15	D-12 to D-15	E-12 to E-15	F-12 to F-15	G-12 to G-15	H-12 to H-15	I-12 to I-15	J-12 to J-15	K-12 to K-15
8:00	**PLENARY SESSION** »Potsdam III« Landscapes of Risk: A New Approach to Risk Assessment and Management (Speaker: Ortwin Renn)										
9:10	Health Care - Human Error Taxonomies and Data Collection	Fire PSA Applications	Rail and Road Transport - Risk Assessment and Regulation	Parameter Uncertainty and Modelling Techniques	External Costs and Accidents Risks	Maintenance Modelling	Radioactive Waste - Managing Risk and Uncertainty	Fault Tree Analysis Methods	Risk Monitors	External Threats to Structures	Risk Assessment in the Chemical Industry II
10:40	Coffee Break										
11:10	Health Care - New Technologies for Risk Management	The USNRC/EPRI Fire Risk Requantification Project	Dangerous Goods Transport Risk	Uncertainty Modelling	Sustainability Assessment	Maintenance Optimization I	Radioactive Waste Management - Assessment Methodology	Risk Assessment and Management - Innovations	NPPs: PSA Developments and Applications I	Virtual Reality for Supporting Safety Assessment and Management	Accident Experience and Modelling in the Chemical Industry
12:40	Lunch Break										
14:00	Panel Discussion: Importing New Technologies in Health Care I	Offsite Risk Assessment	Port Safety Assessment	Manufacturing - Process Control	Insurance and Energy Liabilities	Maintenance Optimization II	Radioactive Waste Management - National Applications I	PSA/QRA Software - Tools	NPPs: PSA Developments and Applications II	Safety Management I	Application of Risk Models and Methods in the Chemical Industry II
15:30	Coffee Break										
16:00	Panel Discussion: Importing New Technologies in Health Care II	PSA Special Models and Approaches	Ship Safety Assessment	Manufacturing - Life Cycle and Production	Regional Risk Assessment (land-use planning)	Risk-Based Inspection and Maintenance Applications	Radioactive Waste Management - National Applications II	PSA/QRA Software - Specific Developments	Event and Precursor Analysis - Nuclear Reactors and Industrial Installations	Safety Management II	Application of Risk Models and Methods in the Chemical Industry I

FRIDAY, JUNE 18, 2004

Room Sessions	Tegel Neu	Tiergarten I B-16	Tiergarten II C-16	Tiergarten III D-16	Köpenick I E-16	Köpenick II	Köpenick III G-16	Charlottenburg I H-16	Charlottenburg II I-16	Charlottenburg III	Schöneberg K-16
8:00	**PLENARY SESSION** »Potsdam III« Reliability and Safety Assessment in Offshore and Process Industries (Speaker: Lars Bodsberg)										
9:10		Workshop: Can Simulation Models Really Help Practice of Maintenance?	Marine Regulations and Classification	Manufacturing - Product Cycle and Control	Health and Environmental Impacts - Assessment and Decision		Radioactive Waste Management - Reliability Aspects	PSA Methodology Aspects - Nuclear Reactor Applications	Event and Precursor Analysis in Various Industries		Application of Risk Models and Methods in the Chemical Industry III
10:40	Coffee Break										
11:10	**CLOSING SESSION** »Potsdam III« Insights and Lessons Learned Presented by Young Generation Programme Participants Plenary: Risk Informed Regulation – Move Towards Realism Ashok Thadani Prospects on PSAM 8 and ESREL ´05 David H. Johnson Krzysztof Kolowrocki Closing Remarks Cornelia Spitzer Ulrich Schmocker										
12:40	**FAREWELL SOCIAL** »Potsdam Foyer«										

INTERCONTINENTAL®
BERLIN

HOTEL MAP

FRIDAY, JUNE 18, 2004

Room / Sessions	Tegel Neu	Tiergarten I B-16	Tiergarten II C-16	Tiergarten III D-16	Köpenick I E-16	Köpenick II	Köpenick III G-16	Charlottenburg I H-16	Charlottenburg II I-16	Charlottenburg III	Schöneberg K-16
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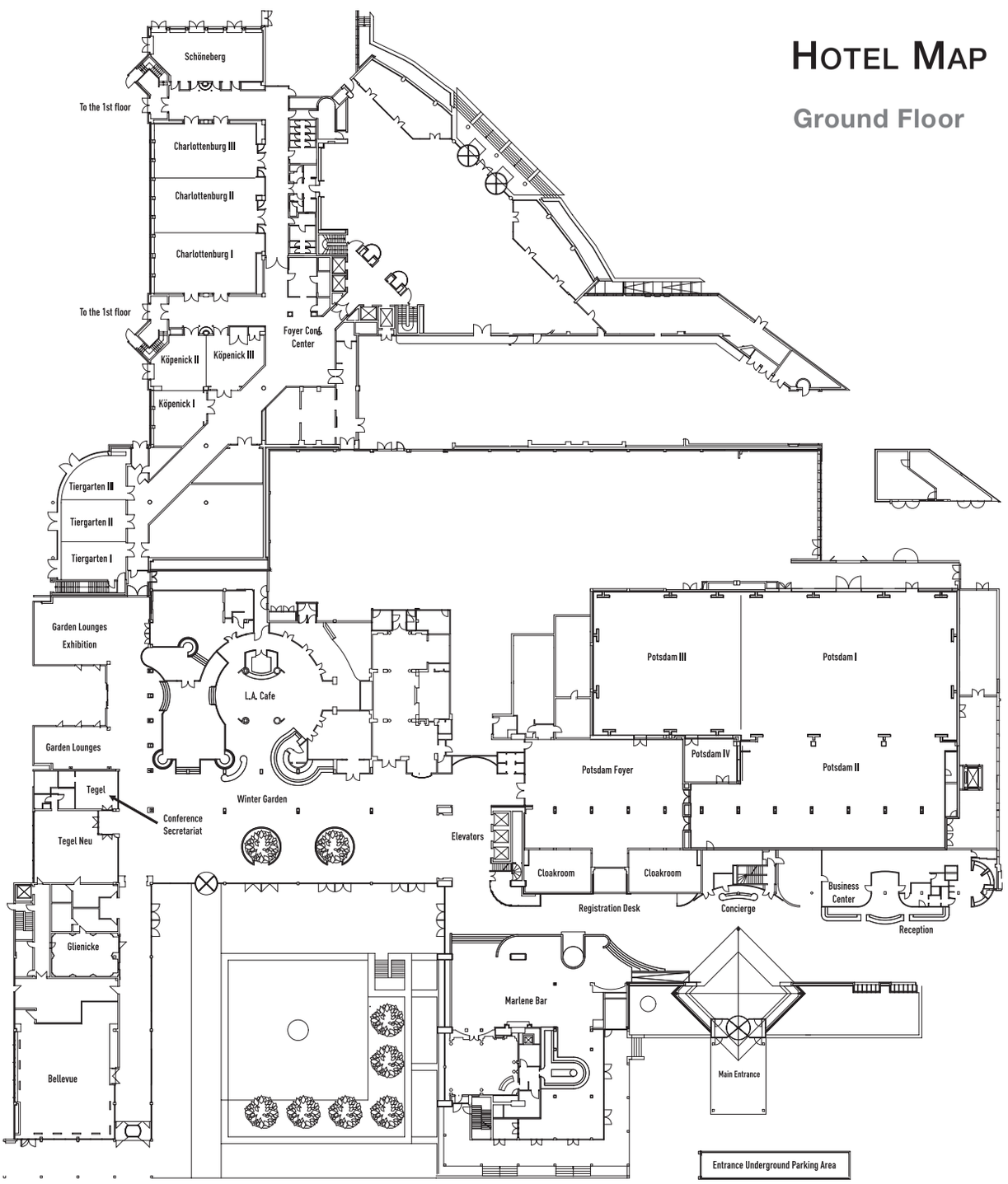
12:40	**FAREWELL SOCIAL** »Potsdam Foyer«										

Hotel Map

Ground Floor



Technical Programme

June 14, 9:30 – 10:45 »Potsdam I«

OPENING SESSION

9:30

Opening Welcome

Cornelia Spitzer, TÜV Süddeutschland, General Chair

9:40

Keynote Address

Some Remarks on Risk Assessment and Safety Management

Gisbert Freiherr zu Putlitz, Gottlieb Daimler and Karl Benz Foundation, Head of Board of Management; Former Rector of the University of Heidelberg

9:55

Opening Plenary by Senior Advisory Board

Chair: Ioannis A. Papazoglou, Demokritos

QRA, RAM and Safety Management in Decision Making: Accomplishments, Challenges, and Future Prospects

10:35

Introduction to the Technical Programme

Ulrich Schmocker, Swiss Federal Nuclear Safety Inspectorate (HSK), Technical Programme Chair

A-1 »Tegel Neu« 11:10 – 12:40

Human Error Management

Chair: Bye A.

The Psychological Factors concerning Human Errors as the Cause of Labour Accidents in Japan
Nakamura T., Usui S., Shinohara K., Kanda K.

CEHAM: How to Analyse the Effectiveness of Human Error Handling in Complex Operations
Di Giulio A., Cagno E., Leva M.C., Trucco P.

The influence of the human error on naval accidents. A Fuzzy logic approach
Carcassi M., Cerchiara G.M., Zambolin L., Romano G.

Human Error Analysis Support System for Maintenance Works
Sakajo S., Wu W., Ohi T.

B-1 »Tiergarten I« 11:10 – 12:40

PSA Reviews – Approaches and Results

Chairs: Cillik I., Schulz R.

Regulatory Review of a PSA. Benefits of Building a Replica
Hessel P.

Lessons Learnt from Review of PSA Studies for VVER-type Reactors
Tokmachev G., Lyubarskiy A.

Regulatory Evaluation of the Mühleberg PSA
Schulz R., Schoen G., Kim I.S., Zavisca M., Yuan Z., Khatib-Rahbar M.

Overview of National Regulatory Practices for Using PSA in Slovakia
Husárcek J.

C-1 »Tiergarten II« 11:10 – 12:40

Managing Occupational Safety

Chair: Steininger U.

Analysis of occupational hazards using fault trees
Marx M., Knetsch T., Hauptmanns U.

Risk Assessment Of Occupational Accident through Fuzzy Model
Murè S., Demichela M., Piccinini N.

Risk Model for Occupational Accidents Applied to Offshore Supply Vessels
Hansson L.

D-1 »Tiergarten III« 11:10 – 12:40

International CCF Data Exchange

Chair: Johanson G.

General Insights from the International Common Cause Failure Data Exchange (ICDE) Project
Baranowsky P., Rasmuson D., Johanson G., Kreuser A., Pyy P., Werner W.

ICDE Project: Insights and Results from the Analysis of Common-Cause Failures of Batteries
Morales R., Pereira B., Pyy P., Werner W.

Lessons learnt from Data Collected in the ICDE Project
Tirira J., Werner W.

Insights and Results from the Analysis of Common-Cause Failure Data Collected in the ICDE Project for Safety and Relief Valves
Johanson G., Jonsson E., Jänkälä K., Pesonen J., Werner W.

E-1 »Köpenick I« 11:10 – 12:40

Safety Functions and Barriers

Chairs: Bodsberg L., Vinnem J.E.

Reflections on the Concept of Safety Barriers
Sklet S., Hauge S.

Analysing Safety Functions and Barriers – Experiences from Different Industrial Sectors
Harms-Ringdahl L.

Evaluating and Managing Safety Barriers in Major Hazard Plants
Duijm N.J., Andersen H.B., Hale A., Goossens L., Hourtolou D.

Optimal Integration of Safety in complex system design using the Safety Modelling Language
Schupp B.A., Hale A.R., Pasman H.J.

F-1 »Köpenick II« 11:10 – 12:40

Approaches and Initiatives in Emergency Response

Chair: Ale B.

From Incident Response to Incident Response Management
Johnsen S.O., Røstad L., Haugset B., Dahl M.B.

Emergency Response Optimization for Major Hazard Industrial Sites
Georgiadou P.S., Papazoglou I.A., Kiranoudis C.T., Markatos N.C.

A Risk – Informed Approach to Decision Making in Rescue Operations
Rake E.L.

G-1 »Köpenick III« 11:10– 12:40

Analysis and Design of Dependable Software Systems

Chair: Nordland O.

Integrating Software into PRA: A Test-Based Approach
Li B., Li M., Smidts C.

Implementing Software Safety on the Space Shuttle Cockpit Avionics Upgrade (CAU) Project: A PRA Case for an Initial Qualitative Approach
McLeod H.C.

Validation of a Software-Related Failure Mode Taxonomy
Lee A., Smidts C., Li B., Li M.

Conditional Risk Model Concept for Critical Space Systems Software
Guarro S., Yau M., Oliva S.

H-1 »Charlottenburg I« 11:10 – 12:40

MC Simulation – Industrial Applications

Chair: Eid M.

Optimized Monte Carlo Simulations for System Reliability Analysis
Campioni L., Scardovelli R., Vestrucci P.

Embedding local search procedures into Genetic Algorithms for the optimisation of industrial systems
Eisinger S., Zio E.

Dynamic Reliability Analysis for Automotive Applications
Woltereck M., Hauschild J., Meyna A.

I-1 »Charlottenburg II« 11:10 – 12:40

Legal and Regulatory Aspects of Risk-Informed Decision-Making

Chair: Apostolakis G.E.

Risk Based Regulation and Cost Effectiveness before the Courts: Experience of a judge
Seiler H.

Substance Prioritisation for the Development of EU Acute Exposure Toxicity Thresholds: Risk-Informed Decision Making
Trainor M., Macbeth R., Balmforth H., Ridgway P.

Uncertainty Assessment in Regulatory Judgement and Decisionmaking
Faust B.

Regulatory Process/Structure for Future Nuclear Power Plant Licensing
Drouin M., King T., Singh A., Lehner J., Mubayi V., Pratt T.

J-1 »Charlottenburg III« 11:10 – 12:40

Bridges – Reliability Aspects

Chair: van Gelder P.

Robust Reliability-based Design Optimization of Suspension Bridges
Catallo L., Bontempi F., Biondini F., Frangopol D.M.

Handling Uncertainties in Optimal Design of Suspension Bridges with Special Emphasis on Loads
Sgambi L., Bontempi F., Biondini F., Frangopol D.M.

Probabilistic Fatigue Analysis of Improved Tubular Bridge Joints Considering Multiple Crack Initiation Sites
Walbridge S., Nussbaumer A.

K-1 »Schöneberg« 11:10 – 12:40

Aviation – Airplane Crash Risks

Chair: McIntyre G.

Analysis of the Risk of the Population due to Airplane Crashes Around Zürich Airport
Bienz A.F.

Airport Public Safety Zones: Part 1 – Risk Model Derivation
Davies P.A., Quinn D.J.

Airport Public Safety Zones: Part 2 – Risk Model Application
Davies P.A., Quinn D.J.

A new determination of air crash frequencies and its implications for operation permissions
Weidl T., Klein G.

A-2 »Tegel Neu« 14:00 – 15:30

Cognitive Analysis and Simulation

Chair: Spurgin A.

A Study on the Development of a Systematic Framework to Construct Diagnosis Procedures
Park J., Jung W., Kim J., Ha J.

Optimization of Task Allocation through Human Cognitive Simulation: Levels of Automation and Human Behaviours
Furukawa H., Inagaki T., Niwa Y.

Analysis of Cognitive Activities of Bushehr Nuclear Power Plant Control Room Operators in Case of Abnormal Conditions
Sepanloo K., Jafarian R.

Multi-Agent Situation Awareness Error Evolution in Air Traffic
Blom H.A.P., Stroeve S.H.

B-2 »Tiergarten I« 14:00 – 15:30

PSA Results – Level 2 and Severe Accidents

Chair: Hollo E.

Level 2 Full Power and Shutdown PSA of the J. Bohunice V1 NPP
Kovacs Z., Pnacek I.

Main Results of a Level 2 PSA Study Completed for Paks NPP
Elter J., Gado J., Hollo E.

Level 2 PSA for the VVER 440/213 Dukovany Nuclear Power Plant
Dienstbier J., Hustak S., Rydl A.

Modelling of Severe Accident Phenomena in Level 2 PSA for Paks NPP
Téchy Z., Lajtha G.

C-2 »Tiergarten II« 14:00 – 15:30

Proactive Approaches to Risk Management

Chair: Fukuda T.

Risk Management Policies in Selected OECD Countries – An OECD Futures Project
Lahidji R.

Investigation of Nuclear Plant Safety Utilizing an Analytical Risk Management Model
Hess S.M., Gaertner J.P.

New frontiers in the management of explosion hazard
Romano A., Fidelibus A.

Error States – Proactive Learning, Forgetting and Elimination using Safety Management
Duffey R., Saull J.

D-2 »Tiergarten III« 14:00 – 15:30

Component Failure Databases

Chair: Görtz R.

The Centralised Component Reliability Database for PSA Purposes ZEDB – Status, Evaluation 2002, Trends
Blombach J., Buckermann R., Schubert B.

Evaluation and Comparison of Estimation Methods for Failure Rates and Probabilities
Vaurio J., Jänkälä K.

The German Utilities' Efforts to Achieve Current Data for Probabilistic Safety Assessment
Wohlstein R.

Reliability Data Collection and Processing for Romanian TRIGA-SSR 14 MW Reactor for PSA use
Mladin D., Mladin M., Cristea D.

Monday, June 14

E-2 »Köpenick I« 14:00 – 15:30

Barrier Analysis

Chair: Hale A.R.

Barrier Change Analysis Method
Øien K., Hauge S., Sklet S., Monsen J.

Defining safety functions and safety barriers from fault and event trees analysis of major industrial hazards
Debray B., Delvosalle C., Fiévez C., Pipart A., Londiche H., Hubert E.

Barrier Analysis Analysed in MORT Perspective
Kingston J., Nertney R., Frei R., Schallier P., Koornneef F.

From Incidents to Proactive Actions: A Bottom-up Approach to Identification of Safety Critical Functions
Tinmannsvik R.K., Rosness R.

F-2 »Köpenick II« 14:00 – 15:30

Emergency Response – Methods and Simulations

Chair: Blombach J.

Development of Management of Nuclear Power Plant Fire Situations
Hukki K., Holmberg J.E.

A Bayesian Network Approach to Accident Management and Estimation of Source Terms for Emergency Planning
Zavisca M., Kahlert H., Khatib-Rahbar M., Grindon E., Ang M.

Multi-agent Simulation of Emergency Response in Nuclear Disaster
Kanno T., Morimoto Y., Furuta K.

The use of Virtual Reality Training for Emergency Response Personnel
van Wijngaarden M.

G-2 »Köpenick III« 14:00 – 15:30

Software Issues in PRA

Chair: Thunem H. P-J.

Can Artificial Intelligence Be Safe?
Nordland O.

Risk in the Aspect of Safety and Reliability of Autonomous System
Drobiszewski J., Smalko Z.

A Common Framework for Design and Safety Analyses using Formal Methods
Deneux J., Åkerlund O.

An Information Retrieval Terminology for Model-Based Risk Assessment
Thunem A.P.-J., Fredriksen R., Gran B.A.

H-2 »Charlottenburg I« 14:00 – 15:30

MC Simulation in Structural Mechanics – Methods and Applications

Chair: Eid M.

Monte-Carlo Simulation – A Powerful Tool to Support Experimental Activities in Structure Reliability
Yuritzinn T., Eid M., Chapuliot S., Masson R., Dahl A., Moinereau D.

The Benefit of Using Sampling Techniques with Adaptive Meta-Models in System Reliability Analysis
Schueremans L., Van Gemert D.

Application of Monte-Carlo-Simulation in Structural Reliability
Curbach M., Proske D.

I-2 »Charlottenburg II« 14:00 – 15:30

Integrated Safety Assessment: Utilisation of PSA in Regulatory Procedures

Chair: Wildermann T.

Introduction of an Integrated Regulatory Safety Oversight in Switzerland
Schmocker U., Schoen G.M., Theiss K., Neumann W., Keel A., Loy D.

Extended Application of PSAs in Regulatory Procedures: Practice and Concept of an Integrated Safety Assessment
Spitzer C., Wildermann T.

Risk Informed Licensing, Regulation and Safety Management of Nuclear Power Plants in Finland
Virolainen R., Sandberg J.

Risk-informed Decision Making at the Hungarian Nuclear Safety Authority
Macsuga G.

J-2 »Charlottenburg III« 14:00 – 15:30

Risk Management and Design of Structures

Chair: Faber M.H.

Functional, Structural and Human Related Safety Measures in Multiple Use of Space
Suddle S.I.

Applications of Risk Management in the Design and Construction of Infrastructure
Duijvestijn A.M.W. (Bart), Kuijper H.K.T., Voortman H.G.

Effectivity of Risk Management for Design & Construct Projects of Large Contractors
Vastert J.G., van Gelder P.H.A.J.M.

Modeling Consequences due to Failure of Extraordinary Structures
Faber M.H., Kübler O., Fontana M.

K-2 »Schöneberg« 14:00 – 15:30

Aviation – Air Traffic Applications

Chairs: McIntyre G., Nagaoka S.

Automatic Dependent Surveillance in the Air Traffic System – a Probabilistic Approach
Navarrete M., Cugnasca P.

An Application of Monte Carlo Method for Estimating the Longitudinal Collision Risk of the NOPAC Route in an ADS Environment
Nagaoka S.

Human-Machine Simulation System for Safety Evaluation in Air Traffic Control
Inoue S., Furuta K.

An Evolutive Environment for Development of Free-Flight
Oliveira Í., Cugnasca P., Camargo J. Jr., Fonseca R., Silva J.

A-3 »Tegel Neu« 16:00 – 17:30

Human Factors Applications

Chair: Fadier E.

Safety Changes Related to ICT Maintenance Systems in Shipping
Ose G.O.

Working Equipment Design: Comparison of Safety Modalities Integration in Two Design Departments
De la Garza C., Fadier E.

Information Retrieval Using Ontology for Sharing Knowledge on Safety
Ogure T., Furuta K.

Political Management Issues and Societal Risk Trade-off for the Built Environment
Corotis R.B.

B-3 »Tiergarten I« 16:00 – 17:30

PSA Applications – Nuclear and Irradiation Facilities

Chair: Blombach J.

PSA Application on the Tokai Reprocessing Plant
Ishida M., Nakano T., Morimoto K., Nojiri I.

Safety analysis in the LBE-Cooled XADS plant through an integrated use of HAZOP, FAULT TREE and thermalhydraulic transient analyses
Aliotta S., Amato V., Casamirra M., Castiglia F., Giardina M.

Probabilistic Safety Analysis of the International Fusion Materials Irradiation Facility
Burgazzi L.

Probabilistic Safety Assessment for a Large Industrial Irradiator
López R., Cuecuecha M.E., Mardian J.

C-3 »Tiergarten II« 16:00 – 17:30

Risk Management Decisions

Chair: Parry G.W.

Precautionary Risk Decision-Making
Rosqvist T., Tuominen R.

Risk and Decision Analysis Techniques Applied to Complex Facility Asset Management
Liming J.K., Dykes A.A.

Multicriterion Problem of NPP Lifetime Management
Gulina O., Salnikov N.

A Paradigm for Energy and Transportation System Surety in the 21st Century
Covan J.M.

D-3 »Tiergarten III« 16:00 – 17:30

Statistical Modelling and Reliability Models

Chair: Atwood C.

Statistical Modelling and Analysis of Failure and Inspection Data for a Railway Line
Dolven O.F., Lindqvist B.H., Hokstad P.R.

Alternative Reliability Prognosis Models for Automotive Components
Meyer M., Meyna A., Pauli B.

Research on components' durability demonstration and verification test for armored vehicles
Wu W., Xiao S-w., Hu F.-h.

E-3 »Köpenick I« 16:00 – 17:30

Managing Safety Barriers

Chair: Bley D.

Managing safety barriers and controls at the workplace
Hale A., Goossens L., Ale B., Bellamy L., Post J., Oh J., Papazoglou I.A.

The barrier requirements in the Norwegian Petroleum Regulations
Nielsen L.

Integrated Barrier Analysis in Operational Risk Assessment in Offshore Petroleum Operations
Vinnem J.E., Aven T., Hauge S., Seljelid J., Veire G.

F-3 »Köpenick II« 16:00 – 17:30

Emergency Management Systems and Lessons Learned

Chair: Abrahamsson M.

SiGES: an innovative emergency management system for high density industrial sites
Sciallero E., Podestá F., Spadon R., Catuzzato F.

Italian explosives depots from TULPS to Seveso II: a proposal for emergency planning
Dadone P.N.

Lessons learnt from a Mediterranean flood (Gard, September 2002)
Huet P., Baumont G.

Risk- and Vulnerability Analyses in Crisis Management of Extreme Events – A Pilot Study
Abrahamsson M., Magnusson S.E., Petersen K.

G-3 »Köpenick III« 16:00 – 17:30

Software Testing and Operating Experience

Chair: Gorski J.

Human Reliability Analysis Related Issues in IT-System Operation: A Case Study
Mock R., Scherrer R.

Insights from Analysis of Procedural Errors in Telecommunications Industry
Chang Y.H., Mosleh A., Macwan A.

The Risk Effect Analysis of the Digital Safety-Critical Systems in a Nuclear Power Plant
Kang H.G., Jang S.-C., Ha J.

Study on Operative Reliability of Safety-Related Control Systems
Fukuda T., Kuroi K., Fukuda G., Shimizu H.

H-3 »Charlottenburg I« 16:00 – 17:30

Dynamic Reliability

Chairs: Labeau P.-E., Dutuit Y.

A Numerical Scheme to solve Integro-Differential Equations in the Dynamic Reliability Field
Cocozza-Thivent C., Eymard R., Mercier S.

Implementation of hybrid Petri nets – Lessons learned from their application to a SMR unit
Kermisch C., Labeau P.E., Lardeux E., Chabot J.L.

The Stimulus-Driven Theory of Probabilistic Dynamics as a Framework for Probabilistic Safety Assessment
Izquierdo J.M., Labeau P.-E.

Controllable Dynamic System Reliability Models for Risk Assessment of Process Control Systems
Petkov G., Matsuoka T.

I-3 »Charlottenburg II« 16:00 – 17:30

Risk-Informed Decision-Making in Regulatory Procedures

Chair: Spitzer C.

Regulatory Use of PSA in Belgium – Status, Lessons Learned and Perspectives
Hulsmans M., De Gelder P., Gryffroy D., van Haesendonck M., Tombuyses B.

Current trends in Risk-Informed changes to Limiting Conditions for Operation
Martorell S., Villanueva J.F., Nebot Y., Carlos S., Serradell V.

Option 2 Risk-Informed Regulation Pilot Application to Cofrentes NPP
Borondo L., Fiol M.J., Vázquez T., Deltoro S.

An Approach to Definition of Large Release
Khatib-Rahbar M., Karimi R., Lantarón A., Calvo J.

J-3 »Charlottenburg III« 16:00 – 17:30

Fire Analyses and Structures

Chair: Duijvestijn A.M.W.

Fire prevention in underground works: software modelling applications
Fileppo E., Marmo L., Debernardi M.L., Demetri K., Pertusio R.

Fire Risk Analysis and Modelling of the Relevant Scenarios: towards a Performance Based Fire Engineering and Protection Approach
Fiorentini L., Rossini V., Coppola G., Ferrari A.

Rapid Assessment of the Consequences of Fire in Sub-Surface Infrastructure
Voortman H.G., Duijverstijn A.M.W. (Bart), Nieuwenhuizen J.B.

Applications and Impacts of a Real Fire in a Residential Building for Analysis the Level of Risk for Life
Ficarella A., Lala R., Perago A., Laforgia D.

K-3 »Schöneberg« 16:00 – 17:30

Maintenance and Optimisation in Aviation and Aerospace

Chair: Paulos T.

Stochastic Process for Aeronautical Design and Maintenance Optimization
Sommerhalter B., Sauvage D.

Emergency in-service air fleet data analysis
Thiebault C., Sauvage D.

Maintenance Wire Risk Evaluation for Space Shuttle
Mulvihill R.J., Cockrell J.

New Methods of Solving Multidimensional Non-Linear Optimisation Problems-Application Thereof to Construct Air-Line Flight Schedules
Jaźwiński J., Klimaszewski S., Żurek J., Gawrylczyk J.

June 15, 8:00 – 9:00 »Potsdam III«

PLENARY SESSION

Chair: Reino Virolainen, Radiation and Nuclear Safety Authority (STUK)

Global Prospects for Nuclear Power Generation
Ralf Güldner, AREVA, Framatome ANP GmbH, Managing Director; Wolfgang Breyer, AREVA, Framatome ANP GmbH, Director Corporate Communications

A-4 »Tegel Neu« 9:10 – 10:40

Current Issues in Human Reliability Analysis (HRA)

Chair: Lois E.

Analysis of Human Decision-based Errors of Commission in Accident Scenarios
Kim J., Jung W., Park J.

Commission Error Causes Identified from Operating Experience
Reer B.

Using Information from Operating Experience to Inform Human Reliability Analysis
Hallbert B.P., Gertman D.I., Marble J., Lois E., Siu N.

Task Complexity as a Factor for Human Reliability Assessment
Braarud P.Ø., Laumann K., Svengren H.

B-4 »Tiergarten I« 9:10 – 10:40

Risk Assessment Applications in Various Industries

Chair: Köberlein K.

Chemistry and Metallurgy Research Replacement (CMRR) Facility Risk Analysis Study
Vigil M., Gordon D., Stringfield L., Durrer R., Greutman M.

Bounding Fire Accident for LANL Plutonium Facility
Richardson J., Gordon D., Tell R., Kern K., Vigil M., Romero J.

Integrating Technical Failures, Human Error and Public Misbehaviour in Rail Risk Assessment
Burns D.

C-4 »Tiergarten II« 9:10 – 10:40

Specific Risk Management Projects

Chair: Gmünder F.K.

System Safety Approach and Management for the Taiwan High Speed Rail Project
Liu M.W.-L., Robertson S., Saleem A.

Early Warning on Vehicle Defects and Recall System
Meyer R.E.

Safety Analysis of the Transrapid Transportation System: Methods and Case Study
Gmünder F.K., Hürzeler C., Kerland G.

Use of Bayesian Belief Networks for risk management in energy distribution
Deleuze G., Bertin H., Dutfoy A., Pierlot S., Pourret O.

D-4 »Tiergarten III« 9:10 – 10:40

Modelling of Dependent Failures and Parameter Estimation

Chair: Tirira J.

Dependency Defence – How to protect against Dependent Failures
Hellström P., Johanson G., Bento J.-P.

Developing Soft Factors Inputs to Common Cause Failure Models
Zitrou A., Bedford T., Walls L.

Analysis and Modelling of Dependent Failures
Knochenhauer M., Mankamo T., Pörn K.

Parameter Estimation for the Process Oriented Simulation (POS) Model for Common Cause Failures
Berg H.P., Görtz R., Schimetschka E.

E-4 »Köpenick I« 9:10 – 10:40

Safety Culture Assessment and Analysis

Chair: Bonaca M.

Safety Culture: Analysis and Intervention
Wilpert B., Fahlbruch B.

Safety Culture Assessment – Methods and Indicators, Results of a German Research Project
Schott H., Balfanz H.-P., Junge R.-D., Linsenmaier B., Sträter O., Kallenbach-Herbert B., Sickert M.

Can safety culture in differing organizations mean the same thing?
Harvey J., Erdos G., Jackson H., Dennison S.

Issues related to Safety Culture
Apostolakis G.E., Bonaca M.V.

F-4 »Köpenick II« 9:10 – 10:40

Assessing and Managing Proliferation Risk

Chair: Cojazzi G.G.M.

Assessing the Proliferation Resistance of Innovative Nuclear Fuel Cycles
Bari R., Roglans J., Denning R., Mladineo S.

How useful can Probability Risk Assessment tools be for Proliferation Resistance assessment
Grenèche D., Xerri C.

A Decision Analysis Based Methodology for the Assessment of the Proliferation Resistance of Nuclear Power Systems
Papazoglou I.A., Bari R.A.

Study of Proliferation Risk for Nuclear Fuel Cycles with Plutonium Breeding
Korobeynikov V.V., Tikhomirov B.B., Oussanov V.I., Iougai S.V., Pshakin G.M., Chebeskov A.N.

G-4 »Köpenick III« 9:10 – 10:40

Software Development Techniques and Tools

Chair: Oster N.

Efficient reliability growth modelling for industrial software failure data
Elbel B., Maeckel O.

A Framework for Dependable Development Process of Complex Computerised Systems
Thunem A.P.-J.

Benchmarking Software Reliability Growth Models
Hu Y., Zhang W., Li B.

H-4 »Charlottenburg I« 9:10 – 10:40

Uncertainty and Dependence Modelling

Chair: Kozine I.

Availability Assessment of Multi-State Systems with Operational Dependence
Zio E., Marella M., Podofillini L.

Markovian modelling with data uncertainties
Châtelet E., Kouta R.

Modelling Dependent Component Failures with Domino Effects
Rakowsky U.K., Schneeweiss W.G.

Reliable operation of Wastewater Treatment Plants by Taking into Account Aleatory and Epistemic Uncertainties in the Design Process
Knetsch T., Hauptmanns U.

Tuesday, June 15

I-4 »Charlottenburg II« 9:10 – 10:40

Risk-Informed Decision-Making Cases I

Chair: Dykes A.A.

Risk-Informed Decision Making in Generic Safety Issue Resolution and Rulemaking
Weerakkody S.D.

An Argument for Using Probabilistic Safety Assessment in Maritime Domain: Some Now, but More Later
Szwed P.S.

Asset Management and Cost Saving Maintenance Strategy Based on Risk-Informed Decision Making
Kauer R., Sacher H.

A Quantitative Assessment on Limiting Conditions for Operations Using a Concept of System Dynamics
Kang K., Jae M.

J-4 »Charlottenburg III« 9:10 – 10:40

Workshop: Structural Reliability Analyses: some new challenges (part 1)

Chair: Ardillon E.

K-4 »Schöneberg« 9:10 – 10:40

Panel: Application of Risk Management in Aviation and Space

Chair:McIntyre G., Preyssl C.

Panelists
McIntyre G., FAA Office of System Safety
Preyssl C., European Space Agency
Khatib-Rahbar M., ERI Consulting and Co.
Mosleh A., University of Maryland
Paté-Cornell E., Stanford University
Sarah M.-G., European Space Agency
Stamatelatos M., NASA
Tohara K., National Space Development Agency of Japan

A-5 »Tegel Neu« 11:10 – 12:40

HRA Data and Analysis

Chair: Hallbert B.

Nuclear Action Reliability Assessment (NARA): A Data-Based HRA Tool
Kirwan B., Gibson H., Kennedy R., Edmunds J., Cooksley G., Umbers I.

Improving the Empirical Basis for Human Reliability Assessment by Simulator Experiments
Bye A., Braarud P.Ø., Smith C.

Human Reliability Analysis (HRA) Good Practices
Kolaczkowski A., Forester J., Lois E., Parry G., Bley D.

B-5 »Tiergarten I« 11:10 – 12:40

Risk Assessment – Case Studies

Chair: Steininger U.

Estimation of Electrical Systems Impact into Total Risk from NPP
Lankin M.

The Evaluation of Reliability and Success Criteria by the Thermal Hydraulic Analysis of Auxiliary Feedwater System using PSA Technology for the Improved KSNP
Kim J.-G., Kim M.-R., Kang S.-K., Park H.-G., Jung G.-J., Park K.-S.

The Effect of Relay Protection on the Substation Reliability
Pottonen L., Pulkkinen U., Koskinen M.

Risk Reduction Through Partial Stroke Testing
Houtermans M.J.M., Rouvroye J.L., Karydas D.M.

C-5 »Tiergarten II« 11:10 – 12:40

Panel: International Perspectives on the use of PSA in the Industry and the Government

Chairs: Stamatelatos M., Preyssl C.

Panelists
Stamatelatos M., NASA
Preyssl C., European Space Agency
Ale B., NIBRA
Kafka P., Relconsult
Mosleh A., University of Maryland
Paulos T., Todd Paulos, Inc.
Saleem A., Taiwan High Speed Rail Corporation
Siu N.O., U.S. Nuclear Regulatory Commission
Tuominen R., VTT Industrial Systems
Zapf B. TÜV SÜD Industrie Service GmbH

D-5 »Tiergarten III« 11:10 – 12:40

Data Analysis – Mathematical Methods

Chair: Cooke R.

Case Studies of EM Algorithm with Masked Data
Tan Z.

Treatment of Partial Homogeneity in Population Variability Analysis of Data
Groen F.J., Mosleh A., Droguett E.L.

Predictive Distributions for Detecting Departures from an Uncertain Baseline
Atwood C.L.

E-5 »Köpenick I« 11:10 – 12:40

Safety Culture Assessment and Comparison

Chair: Wilpert B.

Comparison of Organisational Cultures at Two NPP Maintenance Units – When is Maintenance Work Motivating and Meaningful?
Reiman T., Oedewald P., Rollenhagen C.

Safety Culture aboard Tankers
Håvold J.I.

Assessment and Improvement of Safety Culture across Borders in European Railways
Steiro T., Johnsen S.O., Bergersen C.E.B., Tungland M.

Experience on Applying the Developed Safety Assessment System to Various Industries
Takano K., Hasegawa N., Hirose A., Hayase K., Sasou K.

F-5 »Köpenick II« 11:10 – 12:40

Security and Safeguards – Risk Modelling and Applications

Chairs: Bari R., Poucet A.

Qualitative and Quantitative Analysis of Safeguards Logic Trees
Cojazzi G.G.M., Renda G., Contini S.

Probabilistic Safety Assessment and Management Techniques Applied to Commercial Nuclear Power Plant Security Evaluation
Liming J.K., Dykes A.A.

Development of a PSA-based Vital Area Identification Methodology for the Physical Security of Nuclear Power Plants
Park C.-K., Jung W.S., Yang J.-E., Kang H.G.

PRA of the Abandoned Chemical Weapons in China
Epstein S., Nishimura S., Wakefield D.

G-5 »Köpenick III« 11:10 – 12:40

Software Testing and Fault Detection

Chair: Hauptmanns U.

Verification of Fault Detection Capability with Diversified Software
Beckman H., Warholm L., Endresen J.

A Data Flow Approach to Testing Object-Oriented Java-Programs
Oster N., Dorn R.-D.

Test Automation of Embedded System Software
Han S-S., Park S-D., Kal D-S., Kim E-J.

Diagnostic Tests for Real Time Systems
Nourelfath M., El-Ghazouani K.

H-5 »Charlottenburg I« 11:10 – 12:40

System Reliability Modelling

Chair: Rakowsky U.K.

MFFOP Technology for Setting Reliability Requirements
Todinov M.T.

On the cost function for periodically inspected standby safety systems
Zequeira R.I., Bérenguer C.

Reliability and Safety of Autonomous Electric Energy Supply Systems
Gabel D., Hauptmanns U.

Improvement of the GO-FLOW Methodology
Matsuoka T.

I-5 »Charlottenburg II« 11:10 – 12:40

Risk-Informed Decision-Making Cases II

Chairs: Chakraborty S., Lantaron J.

Mitigating Systems Performance Index Baselines
Eide S., Zeek D.

Cost / Benefit Considerations at Swiss NPPs
Richner M., Zimmermann S., Klügel J.U.

Development of Radiolysis Gas Counter Measures based on Risk Informed Classifications
Schubert B., Kleen U.

From Risk to RAMS informed decision-making on changes to TSM
Martorell S., Villanueva J.F., Nebot Y., Carlos S., Serradell V., Sanchez A.

J-5 »Charlottenburg III« 11:10 – 12:40

Workshop: Structural Reliability Analyses: some new challenges (part 2)

Chair: Ardillon E.

K-5 »Schöneberg« 11:10 – 12:40

International Space Station PRA

Chair: Sarah M.-G.

Strategic Decision-Making Utilizing Probabilistic Risk Assessments for the International Space Station Program
Perera J., Smith C.

The International Space Station Probabilistic Risk Assessment Fire Analysis, Sensitivity Studies for Critical Variables and Necessary Areas of Additional Development
Heard A., Vitali R.

Derivation of Failure Rates and Probability of Failures for the International Space Station Probabilistic Risk Assessment Study
Vitali R., Lutomski M.G.

PSA for Depressurization Hazards in ISS Module
Sato T., Takeuchi N., Seike T., Oga K., Takada S., Sato Y.

B-6 »Tiergarten I« 14:00 – 15:30

Developments in Seismic PSA

Chair: Kluegel J.-U.

Seismic PSA Studies for Japan's Light Water Reactors
Kondo K., Koriyama T., Nishio M., Fukuda M., Hirano M.

Challenges to future Seismic PRA
Klügel J.-U., Rao S., Short S.

Development of Fire Risk Assessment Method Caused by Earthquake (III)
Mitomo N., Okazaki T., Matsuoka T.

Computer Model for Coincidental Failure of Nuclear Power Plants due to Seismic Events in a Multi-Unit Site
Hakata T.

C-6 »Tiergarten II« 14:00 – 15:30

Improving Risk Management Systems

Chair: Hessel P.

Review of the Major Accident Risk Assessment and Risk Management System in Serbia
Stojanovic M.B., Jovasevic-Stojanovic M.

Definition of Safety Integrity Levels and the Influence Assumptions, Methods and Principles Used
Schäbe H.

September 11, Columbia, Davis-Besse and PRA: Business as Usual?
Siu N., Mosleh A., Meacham B.

Linking Risk Analysis to Safety Management
Trbojevic V.

D-6 »Tiergarten III« 14:00 – 15:30

Systems and Maintenance I

Chair: Aldemir T.

The Incorporation of Experienced-based Data into the Markov Maintenance Model and an Impact of Changed Maintenance Intervals on Plant Reliability
Oyama Y., Kirimoto Y., Yoshida T., Miyata K., Sakuramoto K.

Neural Networks for Aeronautical Components Maintenance and Management
Fedele L., Tronci M.

Power System Fault Data and Time Series
Stojkov M., Mikulič ić V., Nikolovski S.

E-6 »Köpenick I« 14:00 – 15:30

Safety Culture and Management

Chair: Steiro T.

Implementation of „What-, How- and Why- Learning" in Offshore Drilling Planning
Madsen B.-E., Pollard M., Helgesen O.

„Smarter Together" in Offshore Drilling – a Successful Action Research Project?
Alteren B., Sveen J., Guttormsen G., Madsen B.-E., Klev R., Helgesen O.

Alienation as an Explanatory Factor for Increased Risk on Service Vessels in the North Sea
Kongsvik T., Bye R.

National culture and safe work practice – A comparison between Filipinos and Norwegian seafaring professionals
Lamvik G.M., Bye R.

Tuesday, June 15

F-6 »Köpenick II« 14:00 – 15:30

Infrastructure Security Risks

Chairs: Burns D., Papazoglou I.

Risk-based Planning of Security Measures for the Protection of the Swiss Defence Infrastructure
Niederhaeuser F., Christen P., Holenstein M.

Security Risk Assessment Methodology for Communities (RAM-C(tm))
Jaeger C.

Managing Infrastructure Security Risk
Rees D.C., Rubin K.I.

Behaviour of Market Players and Risk Assessment of Network Congestion in Electric Power Supply System
Toyoda J., Minazawa K., Iwaita H.

G-6 »Köpenick III« 14:00 – 15:30

Assessment of Safety-Critical Software Systems I

Chair: Ehrenberger W.

Designing Petri Nets for Systems with Component Failure Dependencies
Schneeweiss W.G., Rakowsky U.K.

Diversity Assessment of Nuclear Power Plants Instrumentation and Control Systems
Kharchenko V., Yastrebenetsky M., Sklyar V.

Safety integrity evaluation framework for fault-tolerant control logic according to IEC 61508
Suyama K.

A Generalisation of the Beta Factor Model
Hokstad P.

H-6 »Charlottenburg I« 14:00 – 15:30

Reliability Analysis Methods

Chair: Zio E.

Taylor Series Finite Difference for Reliability Assessment at the Design Stage
Zwingmann X., Aït-Kadi D., Mutel B., Coulibaly A.

A Practical Method for Accelerated Calculations of System Reliability Parameters
Muir I., Nanu L., Formaniak A.

Conjoint Modelling with Extended Coloured Stochastic Petri Net and Reliability Block Diagram for System Analysis
Pozsgai P., Bertsche B.

A Neuro-Fuzzy Reliability Optimisation Method Considering Life Cycle Costs
Savić R., Rakowsky U.K.

I-6 »Charlottenburg II« 14:00 – 15:30

Methods and Tools to Support Risk-Informed Decisions

Chair: Lanore J.-M.

Application of Mixture Priors to Assessment of Performance
Atwood C.L., Youngblood R.W.

Risk-Informed Decision Making with PARAGON™
Shanley L., True D., Parsley E., Steinmetz J., Burchill W.

A Study of Implications of Using Importance Measures in Risk-Informed Decisions
Azarkhail M., Modarres M.

A Quantitative Approach to Risk-Informed Safety Significance Categorization with an Early Expert Participatory
Ha J.S., Seong P.H.

J-6 »Charlottenburg III« 14:00 – 15:30

Civil Engineering – Methods and Models

Chair: Becker G.

Structural Reliability Assessment Based on Discrete Approximation
Elegbede C.

Modeling of Random Fatigue Crack Growth Lifetime
Zou X.

Methods for Reliability Parameters Estimation and Analysis Toolkit
Alzbutas R.

Calibration Study of Eurocodes
Holický M.

K-6 »Schöneberg« 14:00 – 15:30

Space Systems Risk Assessment and Management

Chair: Ferrante M.

Recent Risk Management Initiatives at the European Space Agency – ESA Part 1
Preyssl C., Sarah M.-G.

Recent Risk Management Initiatives at the European Space Agency – ESA Part 2
Preyssl C., Sarah M.-G.

Improvement of Product Robustness by PRA Concept in JAXA
Tohara K., Yamane T.

The Space Shuttle Probabilistic Risk Assessment Framework – A Structured Multiphase Multi-level Modeling Approach for Large and Complex Engineered Systems
Hsu F., Railsback J.

A-7 »Tegel Neu« 16:00 – 17:30

HRA – Current Use of Simulators

Chairs: Reer B., Bareith A.

Simplified HRA modelling compared to detailed modelling, does it give any significant difference of the result for a PSA?
Jacobsson P.

Human Reliability Data from Simulator Experiments: Principles and Context-Sensitive Analysis
Collier S., Ludvigsen J.T., Svengren H.

Simulator Data Collection Requirements for HRA Studies
Spurgin A.J., Bareith A., Karsa Z.

Use of Simulator Data to Support Nonresponse Human Errors Assessments
Arion I., Hannaman G.W.

B-7 »Tiergarten I« 16:00 – 17:30

External Events PSA

Chair: Lyubarskiy A.

Guidance for External Events Analysis
Knochenhauer M., Louko P.

Stochastic Effects of Potential Lightning Impact on Safety Systems
Varbanov V., Hauptmanns U., Wollenberg G., Steinmetz T., Zander R.

Severe Weather Risk Assessment for Loviisa Power Plant
Jänkälä K., Rantalainen L., Vaurio J.

External Events Analysis for Present and Future Nuclear Power Plants – A Regulatory View
Sandberg J., Virolainen R.

C-7 »Tiergarten II« 16:00 – 17:30

Risk Management – Special Issues and Modelling

Chair: Flüeler T.

Semi-Quantitative Risk Based Technical Assessment for Control Involving Ionizing Radiation Sources Across a Large Organization
Ellaschuk B., Hugron R., Kupca S.

Governance of the territory around hazardous industrial plants: pecision process and technological risk
Hubert E., Debray B., Londiche H.

Optimized Use of Safety Interventions
Skjong R., Vanem E.

Socio-Technical Probabilistic Risk Assessment: Its Capabilities and Limitations
Kanki B.G., Marx D., Hale M.J.

D-7 »Tiergarten III« 16:00 – 17:30

Systems and Maintenance II

Chair: Bertsche B., Grall A.

Supporting operational decisions using competing risk models to analyse failure data
Bedford T.

On the Application of PSA Component Reliability and Maintenance Data as a Long Term Safety Indicator
Klügel J.-U.

Aging Effects on Time-Dependent Nuclear Plant Unavailability with Changing Surveillance Interval
Okazaki T., Aldemir T.

The RAMS Analyses in the Face of Ageing. The Bayes Approach
Clarotti C.A., Billy F., Lannoy A.

E-7 »Köpenick I« 16:00 – 17:30

Round table: Barriers Against Accidents, Misuse and Sabotage

Chair: Bley D.

Panelists
Bley D., Buttonwood Consulting, Inc.
Bari R.A., Brookhaven National Laboratory
Bodsberg L., SINTEF Industrial Management
Burns D., Birka Ltd.
Cojazzi G.G.M., EC Joint Research Centre, Ispra
Hale A.R., Delft University of Technology
Poucet A., EC Joint Research Centre, Ispra
Vinnem J.E., Preventor AS

G-7 »Köpenick III« 16:00 – 17:30

Software Reliability Modelling

Chair: Smidts C.

Customer Oriented Dependability Analysis for Relational Database Management Systems
Tsopelas P., Violentis J., Platis A.

Designing more Reliable Web Sites with Performability Modeling
Violentis J., Banos E., Kaklanis N., Vouros G., Platis A.

A Framework for Analyzing Trust in IT Systems
Górski J.

Adapting Business Process Modeling Techniques for Risk Analysis of Computer Based Information Systems
Diergardt M.

Tuesday, June 15

H-7 »Charlottenburg I« 16:00 – 17:30

System Design Optimization

Chairs: Martorell S., Mock R.

An Approach to Optimizing the Structural Reliability and the Reliability of the Control and Safety System of Wind Turbines
Kozine I., Tarp-Johansen N.J., Rademakers L.

The Load Matrix – a method for optimising powertrain durability and reliability test programmes
Hick H., Denkmayr K.

Ant colonies in optimization of system reliability
Nourelfath M., Nahas N.

Optimal Scheduling of Reliability Development Activities
Quigley J., Walls L., Johnson W.

I-7 »Charlottenburg II« 16:00 – 17:30

Materials and Waste: Strategy and Decision-Making

Chair: Damon D.

Safety Goals for Nuclear Materials and Radioactive Wastes – the UK Regulatory Approach
Vaughan G.J.

U.S. Nuclear Regulatory Commission Program on Risk-Informing the Materials and Waste Arenas: Pilot Studies
Damon D., Lui C., Gruss K., Smith J., Leslie B., Wong A.

The U.S. Nuclear Regulatory Commission Program on Risk-Informing the Materials and Waste Arenas: A Decision-Making Framework
Mubayi V., Bari R.A., Grove E., Azarm M.A., Damon D.R., Lui C.H., Shane R.M.

Establishment of Quantitative Consequence Analyses Criteria for the Los Alamos National Laboratory Nuclear Materials Technology Division
Robinson M.A., Lynch C.M., Gordon D.J.

J-7 »Charlottenburg III« 16:00 – 17:30

Civil Engineering – Reliability Methods and Stochastic Analysis

Chair: Takada T.

Application of a Sequential Life Testing with a Truncation Mechanism for an Underlying Three-Parameter Weibull Model
De Souza D.I. Jr.

Stochastic Analysis and Simulation for Seawall Engineering on Qiantang Estuary
Wang W., Jin W., Han Z., Yu T.

Adapting a Dynamic Reliability Model to Measurements using Bayesian Inference
Becker G., Camarinopoulos L., Kabranis D.

Reliability Analysis of Temperature Models According to Eurocodes
Markova J.

K-7 »Schöneberg« 16:00 – 17:30

Risk Assessment for Satellites and other Space Applications

Chair: Paulos T.

Application of PRA for Risk-Informed Decision-Making on a Space Station Payload
Paulos T., Flippen A.A.

Safety Analysis of Microgravity Science Glove-Box Using the ESA Risk Management Approach
Kim I.S., Khatib-Rahbar M., Oliefka L., Preyssl C.

Atmosphere Re-entry Management of BeppoSAX Satellite
Miozzo A., Ambrosetti S., Salvatori L., Mussoni G., Sforza C., Spaziante V.

TIMED Orbital Science Mission PRA Integration
Feldman K., Guarro S.

»Tegel Neu« 18:00

IAPSAM GENERAL ASSEMBLY

Chair: Cornelia Spitzer, IAPSAM, President

»Charlottenburg I« 18:00

ESRA GENERAL ASSEMBLY

Chair: Carlos Guedes Soares, ESRA, Chair

Tuesday, June 15

June 16, 8:00 – 9:00 »Potsdam III«

PLENARY SESSION

Chair: P. Carlo Cacciabue, JRC, European Commission

Communication in High Risk Environments
Rainer Dietrich, Humboldt University of Berlin, Head of GIHRE Collegium

A-8 »Tegel Neu« 9:10 – 10:40

Human Reliability Analysis – Insights from Practice

Chair: Sträter O.

Human Factors Analysis: Central Needs for Practical Applications
Spitzer C.

Responsibilities and Challenges of Human Reliability Assessment in the Regulatory Framework
Sträter O.

Some Insights from HRA Related to Low Power and Shutdown Scenarios
Holý J.

Developments in HRA Technology from Nuclear to Aerospace
Spurgin A.J., Frank M.V.

B-8 »Tiergarten I« 9:10 – 10:40

Level 2 PSA Modelling

Chair: Fabian H.

A Plant-Specific Severe Accident Simulator for KKG and First Applications
Torri A., Klügel J.U., Pokorny V., Lüttringhaus U.

Development of A Linked Level 1 and Level 2 Plant Model Using the Large Event Tree Approach
Xing M., Rao S., Johnson D., Klügel J.U.

Development of a Level 2 PSA Model for the Paks NPP
Bareith A., Karsa Z., Lajtha G., Siklóssy P., Téchy Z., Elter J.

Experimental Assessment of GOTHIC Code for Local Hydrogen Combustion Analysis
Lee J.-Y., Lee J.-J., Park G.-C., Chung S.-H.

C-8 »Tiergarten II« 9:10 – 10:40

Progress in Risk Management Methods I

Chair: Berg H.P.

The Prioritization of Risk Reducing Measures in View of Uncertain Cost/Benefits
Bjørkvoll T., Langseth H.

On the use of expected values in safety management
Abrahamsen E.B., Aven T., Vinnem J.E., Wiencke H.S.

CARMA: Food Safety and Expert Judgement
van der Fels-Klerx H.J., Havelaar A.H., Nauta M.J., Goosens L.H.J., Cooke R.M.

A Risk Determining Model for Hazardous Material Operations: Part II
Cournoyer M.E.

D-8 »Tiergarten III« 9:10 – 10:40

Uncertainty and Sensitivity Analysis – Physical Phenomena

Chair: Duffey R.

Determination of Input Uncertainties of Uncertainty and Sensitivity Analyses
Skorek T.

The DSD and Conventional State/Parameter Estimation
Wang P., Aldemir T.

An Application of DSD with Recursive Partitioning Scheme to Constant Temperature Power Sensors
Burghelea A., Aldemir T.

Thermal-Hydraulic Uncertainty Analysis in the Context of Pressurized Thermal Shock Risk Scenarios
Chang Y.H., Almenas K., Mosleh A., Bessette D.

E-8 »Köpenick I« 9:10 – 10:40

Organisational Learning in Nuclear Safety

Chair: Wahlström B.

Assessing Challenges to Nuclear Power Plant Management in Five European Countries: Methods, Results and Lessons Learned
Kettunen J., Jones B., Reiman T.

Assessing Employee Attitudes towards Behavioural Approaches to Safety Management within UK Reactor Plants
Jones B., Cox S., Rycraft H.

Socio-Technical Organization and Cognition: A Socio-Organizational Approach to Risk Based Assessment and Design
Blackman H., Gertman D.

Organisational learning; a path to safety and efficiency
Wahlström B.

Wednesday, June 16

G-8 »Köpenick III« 9:10 – 10:40

Software and Hardware Diversity and Failure Dependence

Chair: Himanen R.

A Comprehensive Approach for Automated Safety and Reliability Analysis of Systems
Liggesmeyer P., Maeckel O.

Fault Detection in Real-Time Software Systems using Neuro-Fuzzy Tools for Signal Validation and Diagnosis
Thunem H.P.J., Thunem A.P.J.

Classification, Analysis and Detection of Interface Inconsistencies in Safety-Relevant Component-based Systems
Saglietti F., Jung M.

A method for deriving feared scenarios in hybrid systems
Medjoudj M., Khalfaoui S., Demmou H., Valette R.

H-8 »Charlottenburg I« 9:10 – 10:40

Test and Test Planning

Chair: Denkmayr K.

The Study of Reliability Qualification Testing for the Large-scale Equipments
Zhang B.-Y., Zhang Z.-Y.

Consideration of a Field Stress Distribution for the Reliability Test of Transmission Components
Maisch M., Bertsche B.

Fatigue Determination in Case of Spontaneous Failure Mode
Vogt M.

An Advanced Reliability Test Procedure for Gear-Wheels Considering Results Known from Different Gear Transmission Ratios
Hitziger T., Bertsche B., Krolo A.

I-8 »Charlottenburg II« 9:10 – 10:40

Development of PRA Standards I

Chair: Schmocker U.

Updating the Regulatory PSA Guidance in Germany Based on Current Applications
Berg H.P., Fröhmel T., Görtz R.

Differences Between Full Power Operation and Low Power / Shutdown Operation, and the Implications on the LPSD Standard
Bley D., Burchill B., Drouin M., Julius J., Kiper K., Stillwell B.

Insights for Quantitative Risk Assessment of Combined Cycle Power Plants
Ballocco G., Carpignano A., Ponte E.

Risk Guidelines for the Nuclear Materials and Waste Arenas
Bari R.A., Mubayi V., Grove E., Azarm M.A., Chow E., Rubin A.

J-8 »Charlottenburg III« 9:10 – 10:40

Structural Safety Issues

Chair: Corotis R.

Loss-of-Life Modelling in Risk Acceptance Criteria
Lentz A., Rackwitz R.

Relating Lifetime Utility Objectives and Structural Safety
Maes M.A.

A Multicriteria Approach to Risk Analysis Part I: Framework
van Gelder P., Duckstein L., Parent E.

A Multicriteria Approach to Risk Analysis Part II: Application
van Gelder P., Duckstein L., Parent E.

K-8 »Schöneberg« 9:10 – 10:40

Advanced Space Systems and Safety Engineering Challenges

Chair: Preyssl C.

Application of Probabilistic Risk Assessment (PRA) During Conceptual Design for the NASA Orbital Space Plane (OSP)
Rogers J.H., Safie F.M., Stott J.E., Lo Y.

Launch Vehicle Accident Assessment Framework for Future NASA Nuclear Missions
Yau M., Motamed M., Cleary B., Shemanski T.

Safety Engineering on Alenia Spazio Contribution to Space Station Program
Ferrante M., Canepa G., Pesce C.

Difference of Concept between Space PRA and Nuclear PRA
Kojima S., Kohda T.

A-9 »Tegel Neu« 11:10 – 12:40

Panel Session: HRA Data Issues

Chair: Hallbert B.

Panelists
Blackman H., INEEL
Bley D., Buttonwood Consulting, Inc.
Bye A., OECD Halden Reactor Project
Dang V.N., Paul Scherrer Institut
Kirwan B., Eurocontrol

Wednesday, June 16

B-9 »Tiergarten I« 11:10 – 12:40

Fire Risk Methods

Chair: Werner W.

Improved Methodology for the Updated Fire PSA of KKG NPP
Becker G., Klügel J.U.

Development of Fire PSA Methodology and its Application in a Study for Novovoronezh-5 NPP
Lybarskiy A., Rozin V., Kouzmina I., Kazarians M.

Fire PSA including fire spreading – Extensive Modelling of all Dependencies of PSA – Components
Schmaltz H., Rattke J.

Underground Fire Risk Assessment Study for a modern Metro System: integrated methodology and application to a case study
Raffetti A., D'Addio G.F., Faragona B.

C-9 »Tiergarten II« 11:10 – 12:40

Progress in Risk Management Methods II

Chair: Cojazzi G.G.M.

Prospects and challenges of risk management
Rouhiainen V., Räikkönen T., Schabel J.

A Decision Support System for Pollution Control in Cement Plants
Madsen H., Thyregod P., Popentiu F., Albeanu G., Şerbănescu L.

Development of a Scenario Analysis Method for the Analysis of Complex Changes
Øien K., Bodsberg L., Johnsen S.O., Steiro T., Monsen J.

Knowledge Based Risk and Quality Management for Feed and Food
Dirmeier C.

D-9 »Tiergarten III« 11:10 – 12:40

Uncertainty and Sensitivity Analysis – Methodology II

Chair: Balfanz H.-P.

Analytical Framework for Estimation of Uncertainties in Fault Tree
Shimodaira T., Kimura D., Suyama K., Sato Y.

Modelling and uncertainty in system analysis for safety assessment
Kosmowski K.T.

An Approach for Assessing of Plant-specific Data Variation
Lee C.-J., Sung K.-Y.

A Study on Uncertainty Analysis of Safety Systems of Advanced Heavy Water Reactor using Fuzzy Set Theory
Durga Rao K., Gopika V., Prasad M.H., Kushwaha H.S.

E-9 »Köpenick I« 11:10 – 12:40

Safety and the Management of Change

Chair: Jones B.

Leading Safe Change
Steiro T., Bjørnsen L., Dørstad P., Tveiten C.K.

HSE Petroleum: Change – Organisation – Technology
Hovden J., Alteren B., Rosness R.

Organizational Changes in Transport: A Pitfall to Safety?
Tveiten C.K., Jersin E., Steiro T., Vatn J.

How did the Norwegian Railway System Adapt the Existing Experience Based Safety Rules for Traffic Operation to a New Organizational Context and a Risk Based Approach?
Blakstad H.C.

G-9 »Köpenick II« 11:10 – 12:40

Software and Human Factors

Chair: Saglietti F.

Safety Management Aspects on Automatic Train Operation Control Systems Using Predictive Fuzzy Logic
Rachel F., Cugnasca P.

The Technique and the Experience of Expertise of Software for NPP Instrumentation and Control Systems
Kharchenko V., Yastrebenetsky M., Sklyar V.

Configuration Management of Railway Vehicles' Software for a Railway Operator
Heland J., Albold A.

Report on the Comparison of the Software Safety Concepts
Schulze T., Gutgesell J.

H-9 »Charlottenburg I« 11:10 – 12:40

Reliability Applications

Chair: Maisch M.

Monte Carlo Method Application for Reliability and Availability Analysis of Highly Meshed Network Systems
Carpignano A., Salvador E., Gargiulo M., Piccini M.

Structural Reliability Analysis of a Car Front Cradle with Multiple Design Criteria
Donders S., Van der Peer J., Schueremans L.

Fast reliability prediction using Weibull distributions
Ion R.A., Sander P.C.

On Reliability Improvement of the Port Grain Transport Systems
Kwiatuszewska - Sarnecka B.

Wednesday, June 16

I-9 »Charlottenburg II« 11:10 – 12:40

Development of PRA Standards II

Chair: Khatib-Rahbar M.

Development of Guidance for „PSA Quality for Applications“
Kouzmina I., Niehaus F., Ranguelova V.

Addressing the Issue of PRA Quality
Drouin M., Parry G.

The SKI PSA Review Handbook
Hallman A., Nyman R., Knochenhauer M.

EDF Issues New Guide to Good Methodological Practice for PSA Work
Gallois M., Vidal S.

J-9 »Charlottenburg III« 11:10 – 12:40

Structural Reliability

Chair: Takada T.

Optimization Technique for Finding Probabilistic Critical Excitation
Ghodrat Amiri G., Ashtari P.

Methodological Approaches on Structural Durability Assessment
Kudzys A., Kvedaras A.K., Kliukas R.

Methods for fitting a 3-parameter Weibull distribution on fracture toughness data
Marquès M., Pérot N., Devictor N., Saliba B.

Determination of Load and Resistance Factors by Third Moment Approximation
Zhao Y.-G., Ang A.H.-S., Jin G.

K-9 »Schöneberg« 11:10 – 12:40

Risk Assessment for Space Transportation and Launch Vehicles

Chairs: Guarro S., Pate-Cornell E.

Launch Vehicle Development Risk Projection Methodology
Guarro S., Tomei E.

A Probabilistic Analysis of the „Infancy Problem“ of Space Launch Vehicles
Paté-Cornell M.E., Guikema S.D.

Physics Based Risk Assessment of Launch Vehicles
Maggio G., Hark F., Sen D.

A-10 »Tegel Neu« 14:00 – 15:30

Health Care – PRA Approaches

Chair: Cacciabue P.C.

PRA, Patient Safety, and Insights for Quality Improvement in Healthcare
Wreathall J.

The Use of Socio-Technical Probabilistic Risk Assessment at AHRQ and NASA
Battles J.B., Kanki B.G.

Socio-Technical Probabilistic Risk Assessment: Its Application to Patient Safety
Hale M., Slonim A., Allen B., Marx D., Kirkland J.

A Framework for Probabilistic Assessment of New Medical Technologies
Pietzsch J.B., Paté-Cornell M.E., Krummel T.M.

B-10 »Tiergarten I« 14:00 – 15:30

Fire Impact and Consequences

Chair: Kazarians M.

Development of Fire Risk Evaluation System – System Improvement –
Fujii M., Miyagil K., Iwama K., Koshiba T., Sato Y.

A Risk Analysis Approach for the Evaluation of Fire Consequences – An Application to High Speed Craft
Raffetti A., Noce E., Carfagna E., Pedrali M.

How to maintain a reasonable Quality Level in Fire Protection Systems
Schlosser I., Böke J., Lüttenberg R.

PML Probabilistic Assessment for Fire and Explosion Risk in Oil Industry
Iwama K., Sato Y., Suyama K., Sumida H.

C-10 »Tiergarten II« 14:00 – 15:30

Rail and Road Transport – Reliability and Risk Modelling I

Chair: Bley D.

Verification of Load Collectives for the Testing of Automotive Diesel Common Rail Systems
Ulrich D., Bertsche B.

Definition and Analysis of a New Risk Priority Number Concept
Braband J.

Reliability Model of Combined Transportation System
Nowakowski T.

Wednesday, June 16

D-10 »Tiergarten III« 14:00 – 15:30

Uncertainty and Sensitivity Analysis – Methodology I

Chair: Kranz S.

Grouping model input factors to perform a sensitivity analysis computationally efficient
Cariboni J., Campolongo F.

On the Relationship Between the Sensitivity Measures Proposed by Morris and the Variance Based Measures
Campolongo F., Cariboni J.

Computing the Top Event Uncertainty with Binary Decision Diagrams
Šimić Z., Banov R., Vuković I., Mikuličić V.

E-10 »Köpenick I« 14:00 – 15:30

Modelling Organisational Factors

Chair: Fadier E.

Means-end Models of Safety Related Organizational Processes
Petersen J.

Incorporation of human and organizational factors into qualitative and quantitative risk analyses
Kosmowski K.T.

US Nuclear Industry Approaches to Managing Human and Organizational Factors
Ziebell D.

Human and Organizational Contributions to Safety Defences in Offshore Oil Production
Skjerve A.B., Rosness R., Aase K., Hauge S., Hovden J.

F-10 »Köpenick II« 14:00 – 15:30

Maintenance Management

Chair: Vaurio J.

Bayesian Network-based Proactive Maintenance
Muller A., Suhner M.C., Iung B.

A Model for the Use of Knowledge in Developing Effective Maintenance Policies
Smart A., Ansell J.

System Performance Based Inspection
Doron A.

The Value of Proper Modeling in Performance and Resources Assessment
Dubi A.

G-10 »Köpenick III« 14:00 – 15:30

Assessment of Safety-Critical Software Systems II

Chair: Thunem A. P.-J.

Qualitative and Quantitative Analysis of Security in Safety and Reliability Critical Systems
Winther R.

Safety Assessments for Safety-Critical Systems: a Review and Commentary of the Available Techniques
Carpignano A., Morisio M., Rambaudi E.

Licensing of Software for Safety-critical Applications on the Basis of Operating Experience
Ehrenberger W.

Criteria for Software Tools Evaluation in the Development of Safety-Critical Real-Time Systems
Kornecki A.J., Zalewski J.

H-10 »Charlottenburg I« 14:00 – 15:30

Application Framework for Risk Assessment

Chair: Bedford T.

Application of ALARP Principle in Design
Trbojevic V.

Quantifying the safety degradation that an external initiator induces upon a complex facility
Argirov J.P.

Hurricane Loss Estimation Model
Pinelli J.-P., Murphree J., Subramanian C., Gurley K., Cope A., Hamid S., Gulati S.

I-10 »Charlottenburg II« 14:00 – 15:30

Risk Aspects of Electrical Engineering Standards

Chair: Rocco C.M.

Assessment of Safety-related Systems using Markov Model
Long W., Oshima M., Zhang T.

Probability of Failure on Demand in IEC 61508
Shimodaira T., Takeda I., Suyama K., Sato Y.

Safety Analysis according to IEC 61508 – Putting it into Practice
Braband J., Griebel S.

Wednesday, June 16

J-10 »Charlottenburg III« 14:00 – 15:30

Optimising Strategies for Inspection of Structures

Chair: Maes M.A.

Recent Advances in Risk Based Inspection Planning for Structures
Straub D., Faber M.H.

Evaluation of Risk Importance and Inspection Methods for Piping Segments
Kohriyama T., Uchida T., Yamashita M., Nishio M., Kondo K., Fukuda M., Hirano M.

Reliability Control of Coolant Measure System in RBMK-1500 Reactor Using Preventive Maintenance
Augutis J., Matuzas V., Uspuras E.

Optimal Inspection and Replacement Decisions for Multiple Failure Modes
Kallen M.J., van Noortwijk J.M.

K-10 »Schöneberg« 14:00 – 15:30

Panel: PRA Methodology Development Needs and Trends for Space Applications

Chairs: Mosleh A., Stamatelatos M.

Panelists
Mosleh A., U. of Maryland
Stamatelatos M., NASA
Apostolakis G.E., MIT
Cooke R.M., Delft University of Technology
Vesely W., NASA
Smith C., Futron Corporation

A-11 »Tegel Neu« 16:00 – 17:30

Health Care – Human and Organisational Issues

Chair: Wreathall J.

Human Error Risk Management Methodology for Safety Audit of a Large Hospital Structure
Cacciabue P.C., Vella G.

Modeling Techniques and Patient Safety
Wilwerding J.M., White A., Apostolakis G., Barach P., Fillipo B.H., Graham L.M.

Accident and incident analysis in hospitals: how to transfer RECUPERARE method from nuclear industry
de Marcellis-Warin N., Baumont G., Matahri N.

Human Reliability Analysis in Cobalt-Therapy Process using an Adapted ATHEANA Prospective Approach
Núñez Mc Leod J., Barón J., Rivera S.

B-11 »Tiergarten I« 16:00 – 17:30

Panel: IC-Systems as vital part of critical infrastructures – a focus of IRGC's first systemic risk projects

Chair: Kröger W.

Panelists
Kröger W., Swiss Federal Institute of Technology, Zurich (ETHZ)
Doerig A., Novell
Gheorghe A.V., Swiss Federal Institute of Technology, Zurich (ETHZ)
Marsera M., European Commission - Joint Research Centre (Ispra)
Paté-Cornell E., Stanford University

C-11 »Tiergarten II« 16:00 – 17:30

Rail and Road Transport – Reliability and Risk Modelling II

Chair: Bodsberg L.

Reliability Prediction in Railway Signalling
Renpenning F.

Axiomatic Safety-Critical Assessment Process (ASCAP) Risk Assessment of a Transit Signaling System
Cutright E., Ou Y., Cao Y-Y., Zhang H., Monfalcone M., Ghaly N.,Giras T.

Development of a Road Transportation Risk data base for Italy: methodology, models and results
Orlandelli C.M., Vestrucci P.

Development and Use of the UK Railway Network's Safety Risk Model
Dennis C., Somaiya K.

E-11 »Köpenick I« 16:00 – 17:30

Facilitating the Communication of Risk Issues

Chair: Wahlström B.

Public perceptions of risk in relation to large scale environmental projects: a Multi-attribute Decision Making method
Harvey J., Norman P., Joyce S.

Attempt of dialogue forum series for on-demand information disclosure about nuclear facilities
Yagi E., Takahashi M., Kitamura M.

How Region and Knowledge Affect Public Acceptance of Nuclear Power?
Kimura H., Furuta K., Suzuki A.

Augmented Electronic Discussion Through Intelligent Supporting Functions
Furuta K., Kawaguchi A., Maeharal M., Nakata K.

F-11 »Köpenick II« 16:00 – 17:30

Risk-Informed Inspection Prioritisation and Planning

Chair: Cepin M.

Risk-Informed Testing Program for Emergency Diesel Generators
Hämäläinen A., Jänkälä K., Vaurio J.

Study for the Utilization of PSA for Revised Inspection System in Japan
Nishio M., Uchida T., Yamashita M., Kondo K., Koriyama T., Fukuda M.

Database System for Risk Evaluation in Material Degradation
Takahashi M., Usami J., Tsujimoto Y., Kitamura M.

H-11 »Charlottenburg I« 16:00 – 17:30

Risk and Reliability – Theory and Frameworks

Chair: Siu N.O.

A New General Accident Theory
Duffey R.

On Developing a Risk Analysis Framework for Post-Industrial Age Technologies
Kastenberg W., Hauser-Kastenberg G., Norris D.

An Integrated Framework for Identification, Classification and Assessment of Aviation Systems Hazards
Mosleh A., Dias A., Eghbali G., Fazen K.

An Entropy-Based Exploration Strategy in Dynamic PRA
Hu Y., Groen F., Mosleh A.

J-11 »Charlottenburg III« 16:00 – 17:30

QRA – Roads and Tunnels

Chair: Faber M.H.

The Dutch Model for the Quantitative Risk Analysis of Road Tunnels
Brussaard L.A., Kruiskamp M.M., Oude Essink M.P.

A method for the estimation of casualties caused by accidents in tunnels
Jonkman S.N.

Tunnel Safety: two Approaches to consider Risks in Freight Railway Tunnels
Rosmuller N., Ale B.

Three-Dimensional Individual and Group Risk Approach of Buildings above Roads and Railways during Exploitation
Suddle S.I.

K-11 »Schöneberg« 16:00 – 17:30

Risk Assessment in the Chemical Industry I

Chair: Papazoglou I.

Development of Management of Change (MOC) Software for Small and Medium Sized Chemical Plants
Kim J., Lee J., Kim K., Kim Y., Baek J.

Risk Matrix as Tool for Risk Assessment in the Chemical Process Industries
Ruge B.

An Integrated Safety for Business Analyses of Process Plants
Reinders J.E.A., Kamperveen J.P.

A Practical Method for Reviewing Safety Studies of Process Plants
Papazoglou I.A., Giakoumatos I., Aneziris O.N.

Wednesday, June 16

June 17, 8:00 – 9:00 »Potsdam III«

PLENARY SESSION

Chair: Stefan Hirschberg, Paul Scherrer Institut (PSI)

Landscapes of Risk: A New Approach to Risk Assessment and Management
Ortwin Renn, University Stuttgart

A-12 »Tegel Neu« 9:10 – 10:40

Health Care – Human Error Taxonomies and Data Collection

Chair: Wreathall J.

Two Kinds of Error?
Senders J.W.

Analysing Medical Incident Reports by Use of a Human Error Taxonomy
Itoh K., Andersen B.

Hospital Staff Attitudes to Models of Reporting Adverse Events: Implications for Legislation
Andersen H.B., Hermann N., Madsen M.D., Østergaard D., Schiøler T.

B-12 »Tiergarten I« 9:10 – 10:40

Fire PSA Applications

Chair: Kouzmina I.

First Experiences Regarding Probabilistic Fire Safety Assessment for Full Power and Low Power/Shutdown Operational States
Berg H.P., Röwekamp M., Türschmann M., von Linden J.

PRA Modelling Under Elevated Ambient Temperature
He W.G.

Cable Failure Modes and Effects Risk Analysis Perspectives
Nowlen S.P.

A PRA Approach to Evaluate Post-Fire Safe Shutdown Capacity for Risk-Informed Fire Analysis in Taiwan
Wu C.-H., Lin T.-J., Kao T.-M.

C-12 »Tiergarten II« 9:10 – 10:40

Rail and Road Transport – Risk Assessment and Regulation

Chair: Bohnenblust H.

Safety Functions in Railways – a Structural Analysis of Safety Rules
Harms-Ringdahl L., Kecklund L.

A View and Movement of the Safety and Reliability in Railways of Japan
Ogino T., Akita K., Hirao Y.

A Comparison of Data-Driven and Model-Based Approaches to Quantifying Railway Risk
Bedford T., Quigley J., French S.

Scenario Analysis, a Safety Engineering Design Tool
Kuiken M.J., Stoop J.A., Ijsselstijn S.

D-12 »Tiergarten III« 9:10 – 10:40

Parameter Uncertainty and Modelling Techniques

Chair: Cooper J.A.

A Hierarchical Uncertainty Model, Combination Rules and Uncertainty Propagation
Kozine I.

Reliability Analysis of Automotive Systems: Quantification of Data Uncertainty
Woltereck M.M.

Parameter Uncertainty in Level 1 PSA Model of Krško NPP with Focus on CCF
Vrbanić I., Cizelj R.J.

Stratified Sampling for Estimating Reliability Quantiles for a Thermohydraulic Transient
Ardillon E.

E-12 »Köpenick I« 9:10 – 10:40

External Costs and Accidents Risks

Chair: Rossetti di Valdalbero D.

Quantification and tentative internalisation of energy external costs in the European Union
Rossetti di Valdalbero D.

External Costs from Severe Accidents in Non-nuclear Fuel Chains: Valuation of relevant end-points
Hunt A., Ortiz R., Markandya A.

Accident Risks in the Energy Sector: Comparison of Damage Indicators and External Costs
Hirschberg S., Burgherr P., Hunt A.

Severe Accidents in Fossil Energy Chains: Individual Chain Results and Aggregated Evaluations
Burgherr P., Hirschberg S.

Thursday, June 17

F-12 »Köpenick II« 9:10 – 10:40

Maintenance Modelling

Chair: Labeau P.-E.

Markov Model Analysis for Efficient Plant Maintenance
Muta H., Tomohisa Y., Sato Y.

Modelling the Degrading Failure of a Rail Section Under Periodic Inspection
Podofillini L., Zio E., Vatn J.

Method to optimize the test and maintenance activity of stand by safety systems
Caira M., Gambellini A.

Maintenance Improvement of an Aircraft Fleet by a Software Method Based on Reliability Criteria
Righini R., Marcodini G., Treves D., La Vopa P.

G-12 »Köpenick III« 9:10 – 10:40

Radioactive Waste – Managing Risk and Uncertainty

Chair: Mohanty S.

Long-term Radioactive Waste Management: Challenges and Approaches to Regulatory Decision Making
Flüeler T.

Management of Uncertainty and Risk in Safety Cases for Radioactive Waste Disposal: Summary of an OECD/NEA Workshop held in Stockholm February 2004
Dverstorp B., Wilmot R.D., Voinis S.

The Role of Probabilistic Safety Analysis in Radioactive Waste Management – A UK Regulatory View
Vaughan G.J.

What Role for Performance Assessment?
Reiter L.

H-12 »Charlottenburg I« 9:10 – 10:40

Fault Tree Analysis Methods

Chair: Himanen R.

A Method for Finding Prime Implicants in Incoherent Fault Trees by Use of Commonly Available Tools for Minimal Cut Set Analysis in Coherent Fault Trees
Puhr-Westerheide P.

Systematic Approach for Capturing Inter-phase Failure Combinations in an Integrated, Multiphase Linked Fault Tree Model of the Space Shuttle
Bigler M., Stewart M.

Accident Sequence Analysis of Fault Tree with Event Sequence Dependency
Kohda T., Cui W., Inoue K.

I-12 »Charlottenburg II« 9:10 – 10:40

Risk Monitors

Chair: Richner M.

Risk Monitoring Systems
Kafka P.

Experiences from Implementing a Risk Monitor at OKG
Bäckström O., Augustsson T.

Integration of LERF Calculation Capability into the Second Generation of Taiwan's NPP Risk Monitor
Kao T.-M., Lin J.-D., Chao C.-C.

Status and Actual Risk Monitoring in a NPP Reactor Protection System
Varga I., Bartha T., Szabó G., Kiss B.

J-12 »Charlottenburg III« 9:10 – 10:40

External Threats to Structures

Chair: Maes M.A.

Statistical Resampling in Assessing External Threats to Structures
Vaidogas E.R.

Stochastic Prediction of Seismic Ground Motions Using Macro-Spatial Correlation Model
Takada T., Shimomura T.

Optimal Intensity Measures for the Characterization of the Ground Motion in Performance-Based Seismic Design
Ciampoli M., Giovenale P.

Probabilistic Performance Criteria for Tall Buildings Subjected to Wind
Diniz S., Iancovici M., Riley M., Simiu E.

K-12 »Schöneberg« 9:10 – 10:40

Risk Assessment in the Chemical Industry II

Chair: Hauptmanns U.

A Quantitative Risk Analysis Model of Scenarios Characterised by Explosion Fragments and Missiles
Maschio G., Cambria D., Lisi R., Milazzo M.F.

Damage Assessment of Industrial Accidents by Frequency-Magnitude Curve
Hanayasu S., Sekine K.

Integrated Dynamic Decision Analysis (IDDA): an Advanced Tool for Risk Analysis
Demichela M., Piccinini N.

Global assessment of the technological risks relative to the transport and the storage of chemical products
Defert R., Ruffin E.

Thursday, June 17

A-13 »Tegel Neu« 11:10 – 12:40

Health Care – New Technologies for Risk Management

Chair: Battles J.

How Cognitive Artifact Support of Acute Care Distributed Cognition Affects Patient Safety
Nemeth C.P., Cook R.I., O'Connor M., Klock P.A.

An Object-Oriented Risk Management tool for Communicable Disease Control in the UK
Gelletlie R., Schweiger M., Barnes H., Hamilton R., Kara-Zaitri C.

Hospitals and Health Care Facilities: Guidelines for the implementation of an effective Safety and Health Management System
Romano A., Pinetti G., Fiorentini L., Scarpellini S.M.

Risk Analysis for Mobile Telephony in a Hospital
Nordland O.

B-13 »Tiergarten I« 11:10 – 12:40

The USNRC/EPRI Fire Risk Requantification Project

Chair: Siu N.O.

The Ongoing Joint U.S. NRC/EPRI Fire Risk Requantification Study
Hyslop J.S., Kassawara R.P., Nowlen S.P., Najafi B.

Methods Advances in the EPRI/USNRC Fire Risk Requantification Study – Fire Modeling
Nowlen S.P., Najafi B., Kazarians M., Joglar-Billoch F.

Fire Risk Requantification Study – Fire Ignition Frequencies
Kazarians M., Joglar F., Nowlen S.P., Najafi B.

Methods Advances in EPRI/NRC Risk Requantification Project: Modeling of Post-Fire Safe Shutdown in Fire PRA
Najafi B., Kolaczkowski A., Funk D., Wyant F., Forrester J., Hannaman W.G., Anoba R.

C-13 »Tiergarten II« 11:10 – 12:40

Dangerous Goods Transport Risk

Chair: Ho V.

Quantitative Transport Risk Analysis on a Regional Scale: An Application of TRAT-GIS to East Sicily
Maschio G., Milazzo M.F., Antonioni G., Spadoni G.

Advanced Spatial Modelling for Risk Analysis of Transportation Dangerous Goods
Gheorghe A.V., Birchmeier J., Kröger W., Vamanu D.V., Vamanu B.

The Use of HazOp and Fault Tree techniques for the assessment of non-accident induced release frequencies in the transport of hazardous substances
Cozzani V., Spadoni G., Giusti S., Zanelli S.

D-13 »Tiergarten III« 11:10 – 12:40

Uncertainty Modelling

Chair: Becker G.

Uncertainties and Transformation Principles in PSA
Wagenknecht M., Gocht U.

Non-Parametric Continuous Bayesian Belief Nets with Expert Judgement
Kurowicka D., Cooke R.

Probabilistic Uncertainty Analysis Applied to Fuel Rod Design
Wensauer A., Distler I., Heins L.

E-13 »Köpenick I« 11:10 – 12:40

Sustainability Assessment

Chairs: Hirschberg S., Renn O.

A Multi-Criteria Approach for the Classification of EU Countries with Respect to their Progress Towards Sustainable Development
Diakoulaki D., Mavrotas G.

Social Assessment of Regional Energy Scenarios
Renn O.

An Integrated Decision-Support Tool for Sustainable Energy Supply
Hirschberg S., Dones R., Burgherr P., Heck T., Schenler W.

Assessing the Sustainability of Heavy Metal Emissions in Europe
Bachmann T.M., Droste-Franke B., Friedrich R.

F-13 »Köpenick II« 11:10 – 12:40

Maintenance Optimization I

Chair: Rouhiainen V.

Importance of assessing effectiveness of repair in obtaining an optimal maintenance strategy for repairable assets
Al-Doori M., Ansell J., Archibald T., Thomas L.

An MILP Model for Medium-term Production and Maintenance Management
Pixopoulou N., Papageorgiou L.G.

Effect of false alarms on the optimisation of the maintenance decisions
Barros A., Bérenguer C., Grall A.

A Joint Spare-Provisioning and Preventive Maintenance Strategy for Availability Maximization under Limited Resources
Diallo C., Aït-Kadi D., Chelbi A.

Thursday, June 17

G-13 »Köpenick III« 11:10 – 12:40

Radioactive Waste Management – Assessment Methodology

Chair: Dverstorp B.

The Use of Trivial Reductions of Dimensionality in the Propagation of Uncertainties: A Radioactive Contaminant Transport Model Example
Bolado Lavin R., Mira McWilliams J.

Role of Component Sensitivity Analysis in the Risk Assessment of a Large and Complex System
Mohanty S., Sagar B., Janetzke R., Wittmeyer G., Patrick W.

The Interpretation of Risk and Sensitivity Under the Peak-of-the-Mean Concept
Codell R., Esh D., Mohanty S.

Application of Bayesian Network Considering the Special Dependency to Stochastic Events
Lee C.J., Lee K.J.

H-13 »Charlottenburg I« 11:10 – 12:40

Risk Assessment and Management – Innovations

Chair: Dutuit Y.

AMSMA (Aviation Maintenance Safety Management Assistant) An Alternative Top-Down Approach to Support Risk Management and Decision Making
Bieder C., Pariès J., Koning Y.

A Machine Learning Algorithm to Estimate Minimal Cut and Path Sets from a Monte Carlo Simulation
Rocco C.M., Muselli M.

Representation of Risk Scenarios via Euler Diagrams
Lambert J.H., Sarda P.

I-13 »Charlottenburg II« 11:10 – 12:40

NPPs: PSA Developments and Applications I

Chair: Wohlstein R.

International PSA Developments
The OECD/NEA Viewpoint
Lanore J.-M., Kaufer B., Versteeg M.F., De Gelder P., Shepherd C.

Applications of Probabilistic Safety Assessment in the Nuclear Power Plant Philippsburg (KKP)
Singh J.B.

The ASME PRA Standard and the HCPRA Update
He W.G., Burns E.T.

Evolution of NPP Design from a PSA standpoint
Kang S.-K., Lim H., Jung G.-J., Park K.-S.

J-13 »Charlottenburg III« 11:10 – 12:40

Virtual Reality for Supporting Safety Assessment and Management

Chair: Colombo S.

Virtual Reality as Tool for Supporting the Human Failure Probabilities Estimation
Colombo S., Biardi G., Cacciabue P.C.

Identifying Technical Limitations in Applying Virtual Reality to Human Factor Methodologies
Vezzadini L.

Color and Contrast Adaption Issues in VR Interfaces for Security Training
Marini D., Gadia D., Rizzi A., Gatta C.

Virtual Reality for Safety Analysis
Stüring S., Trasi A.

K-13 »Schöneberg« 11:10 – 12:40

Accident Experience and Modelling in the Chemical Industry

Chair: Hourtolou D.

Recent accident frequency on fixed installations in France and in the EU
Dechy N., Descourriere S., Bouissou C.

Control of Major Accident Hazards and Performance Indicators: the case of Transmission Pipelines
Papadakis G.A., Spiekhout J., Wettig J.

The Estimation of Vulnerability in Domino Accidental Events
Antonioni G., Cozzani V., Gubinelli G., Spadoni G., Zanelli S.

A-14 »Tegel Neu« 14:00 – 15:30

Panel Discussion: „Importing New Technologies in Health Care“ (part 1)

Chair: Wreathall J.

Panelists
Wreathall J., John Wreathall and Co., Inc.
Battles J., Agency for Healthcare Reserach and Quality (AHRQ)
Cacciabue P.C., EC Joint Research Centre, Ispra
Nemeth C., The University of Chicago
Senders J., Miami Center for Patient Safety

Thursday, June 17

B-14 »Tiergarten I« 14:00 – 15:30

Offsite Risk Assessment

Chair: Ha J.

Prediction of Evacuation Time in Radiological Emergency using Fuzzy System
Han M.H., Jeong H.J., Kim E.H., Suh K.S., Hwang W.T.

Comparison of Average Transport and Dispersion Among a Gaussian Model, a Two-Dimensional Model and a Three-Dimensional Model
Mitchell J.A., Molenkamp C., Bixler N.E., Morrow C.W., Ramsdell J.V. Jr.

Analysis of Radiological Consequences and its Characteristics in a typical BWR with a MARK-II Containment
Funayama K., Sumida S., Kajimoto M.

Neutral gas dispersion modeling revised
Kootstra F., Pons Julià A., van het Veld F.

C-14 »Tiergarten II« 14:00 – 15:30

Port Safety Assessment

Chairs: Rao S., Kolowrocki K.

An Assessment of Fire Services at a Port
Rao S.B., Salter J., Grenier A.T.

Risk Based Decision Model for Maximal Ship Entry to the Ports
Gucma L.

Reliability Improvement of Transportation Systems in their Operation Processes
Blokus A.

Availability Improvement of Port Transportation Structures in Their Operation Processes
Kolowrocki K.

D-14 »Tiergarten III« 14:00 – 15:30

Manufacturing – Process Control

Chair: Ihrig D.

Reliability-Adaptive Control of Tool Wear in Transfer Lines
Dietl C., Rakowsky U.K.

Statistical Process Control Procedures in Relation with Reliability Engineering
Ramalhoto M.F., Göb R., Pievatolo A., Evandt O.

Reliability Evaluation for an Oxygen Generator in an Air-conditioner by Accelerated Life Testing
Jo Y., Park S., Lee S., Park S.

Dictionary of Elementary Effects (DELEE): Application to the Functional Requirements of Industrial Systems
Rohmer S., Amoussou G.A.

E-14 »Köpenick I« 14:00 – 15:30

Insurance and Energy Liabilities

Chair: Kirchsteiger C.

Insurance Engineering
Karydas D.

Damage Compensation and Risk-Informed Regulation: Status and Trends in the EU
Kirchsteiger C.

Credibility in risk assessment
Busby J.S., Alcock R.E., Hughes E.J.

Liability and Controlling Technological Risks. Ethical and Decision Theoretical Foundations
Zandvoort H.

F-14 »Köpenick II« 14:00 – 15:30

Maintenance Optimization II

Chair: Zio E.

Optimizing Pooled Power Plant Spare Parts
Hall S., Doron A.

Monte Carlo Optimization of the Replacement Strategy of Components subject to Technological Obsolescence
Michel O., Labeau P.E., Mercier S.

Universal Moment Generating Function and Stochastic Petri Nets to Redundancy Optimization for Multi-State Systems under Repair Policies
Nourelfath M., Dutuit Y.

The Micmaq Project: Minimum cost – Maximum quality for the Maintenance Optimization of the Belgian Power System
Fouathia O., Maun J.C., Labeau P.E., Wiot D.

G-14 »Köpenick III« 14:00 – 15:30

Radioactive Waste Management – National Applications I

Chair: Vaughan G.

Morsleben Nuclear Waste Repository. Probabilistic Safety Assessment of the Long-Term Safety
Resele G., Niemeyer M., Jaquet O., Wollrath J.

Sensitivity Analysis of an Engineered Barrier System Model for the Potential Repository System in the United States
Pensado O., Sagar B.

Probabilistic Risk Analysis Methodology for Preclosure Operations at a Geologic Nuclear Waste Repository
Benke R., Dasgupta B.

Thursday, June 17

H-14 »Charlottenburg I« 14:00 – 15:30

PSA/QRA Software – Tools

Chair: Kafka P.

Improvement of FT-FREE using the BDD method
Tomizawa S., Miyata K.

Development of an Efficient BDD Algorithm to Solve Large Fault Trees
Jung W.S., Han S.H., Ha J.

NOT-Logic in RiskSpectrum® PSA Professional
Sörman J.

Managing your PSA Model and FMEA
Olsson A.

I-14 »Charlottenburg II« 14:00 – 15:30

NPPs: PSA Developments and Applications II

Chair: Husárcek J.

The Use of PSA for Development and Evaluation of NPP Dukovany Symptom-oriented EOPs
Husták S., Patrík M.

PSA for the Replacement Research Reactor
Barón J., Núñez Mc Leod J., Rivera S., Bastin S.

The Time Consideration in Risk Informed Tools
Sedlak J.

Evaluation of Shutdown Risk Using FT-FREE Risk Monitoring Function
Sakuramoto K., Miyata K., Tomizawa S.

J-14 »Charlottenburg III« 14:00 – 15:30

Safety Management I

Chair: Blackman H.

Soft Markov Chain Relations For Modeling Safety Management
Cooper A.J.

Safety management system for major accidents prevention: role of the knowledge management tools and advanced integrated information systems
Fiorentini L., Rossini V., Parodi E.

Choosing between organisational and technical safety: a practical approach for industry
Gort J., Reinders J., Zwanikken S.L.J.

K-14 »Schöneberg« 14:00 – 15:30

Application of Risk Models and Methods in the Chemical Industry II

Chair: Papadakis G.

Shortcut models for the estimation of the consequences of a gas cloud explosion in industrial environment
Baldacci S., Andreis F., Lombardi A., Marotta F., Mossa Verre M., Fineschi F.

A New Algorithm for Data Reconciliation, Gross Error and Leak Identification to Prevent Explosions in Gas Piping Network
Baldacci S., Hvala M.

Estimation of Damage to Equipment Caused by Blast Waves by Means of Fuzzy Sets
Salzano E., Cozzani V.

Probabilistic Procedure to Evaluate Integrity of Degraded Pipes
Roos E., Herter K.-H., Julisch P., Schuler X., Ringel M.

A-15 »Tegel Neu« 16:00 – 17:30

Panel Discussion: „Importing New Technologies in Health Care“ (part 2)

Chair: Wreathall J.

Panelists
Wreathall J., John Wreathall and Co., Inc.
Battles J., Agency for Healthcare Research and Quality (AHRQ)
Cacciabue P.C., EC Joint Research Centre, Ispra
Nemeth C., The University of Chicago
Senders J., Miami Center for Patient Safety

B-15 »Tiergarten I« 16:00 – 17:30

PSA Special Models and Approaches

Chair: Park C.K.

Modelling of Failing Reactivity Control in PSA for Barsebäck 2
Ingemarson I., Olsson L., Bäckström O.

An Approach to Estimate SBO Risks in Multi-unit Nuclear Power Plants with a Shared Alternate AC Power Source
Jung W.S., Yang J-E., Ha J.

Specifying the frequency of an initiator threatening the safety of a complex system where the available data is not directly relevant
Argirov J.

An Analysis of Source Term Reduction by Implementing Accident Management Measures to BWR-5 Plant
Sumida S., Funayama K., Kajimoto M., Tanaka N.

Thursday, June 17

C-15 »Tiergarten II« 16:00 – 17:30

Ship Safety Assessment

Chair: Matsuoka T.

Generic Ship, Specific Ship? Towards Risk-based Approaches to Maritime Regulation
Chantelauve G.

Commercial Accidents – an assessment of four leading tanker companies
Soma T.

Comparison of Modelling Methodologies for the Formal Safety Assessment in Shipping Transportation
Konstantinidou M., Mennis E., Nikitakos N., Platis A.

Evaluation of Occurrence Frequencies of Marine Accidents by Event Tree Analysis
Matsuoka T., Mitomo N., Kaneko F.

D-15 »Tiergarten III« 16:00 – 17:30

Manufacturing – Life Cycle and Production

Chair: Behr A.

Assistance to modelling a distributed production system by using the languages and automata theory: application to production efficiency assessment
Niel E., Chafik S., Signoret J.P., Velasco S., Velichkova B.

Improving Safety and Dependability by Enhancing the Availability of Product Specific Information
Reunanen M., Scholliers J., Säämänen A., Viitaniemi J., Välisalo T.

FMEA as Design Monitor-, Regulation- and Management Tool Parallel to Product Design Cycle for an Optimised Quality Assurance
Pickard K., Müller P., Bertsche B.

Exposure to Hazardous Substances during Electronic Waste Recycling
Ihrig D.F., Hanke M., Ihrig C., Tischer M.

E-15 »Köpenick I« 16:00 – 17:30

Regional Risk Assessment (land-use planning)

Chair: Christou M.

Case Studies in Italy of Potential additional Safety Measures for the Purpose of Land-Use Planning
Gagliardi R.V., Ludovisi G.

Towards an evolution of risk assessment and land-use planning (LUP) approaches in France
Salvi O., Rodrigues N., Descourrière S., Gaston D.

Flood Forecast Model and Probabilistic Analysis
Simaityte Volskiene J., Uspuras E., Augutis J.

Development of European Guidance and a Common Risk/Hazard Assessment Database for Land-Use Planning in the Context of Major Accident Hazards
Christou M., Struckl M., Duffield S., Salvi O., Bernuchon E., Post J., Beerens H.

F-15 »Köpenick II« 16:00 – 17:30

Risk-Based Inspection and Maintenance Applications

Chair: Görtz R.

Assessment on Scheduling Coal Power Station Maintenance
Sánchez-Martín P., López-de-Haro S., Fernández-Caro J., de la Hoz J.E.

Concept of Risk-based Monitoring and its Application for High-temperature Components in Power Plants
Jovanovic A.S., Roos E., Balos D., Bareiss J.M.

Risk Based Inspection Planning for Ship Structures Subjected to Corrosion Deterioration
Dianqing L., Shengkun Z., Wenyong T.

ATLAST Deployment & Push Pack Spares Optimization Module
Gurvitz N., Borodetsky S., Van Eck P.

G-15 »Köpenick III« 16:00 – 17:30

Radioactive Waste Management – National Applications II

Chair: McKinley I.G.

Deterministic and Probabilistic Analysis Supporting the Safety Case for a Proposed Deep Geological Repository in Opalinus Clay in Northern Switzerland
Schneider J.W., Johnson L., Zuidema P., Mayer G.

Methodology for Risk Assessment of an SNF Repository in Sweden
Hedin A.

Long-term Safety of Final Repositories: Experience concerning the Role of Uncertainty and Risk in Assessments and Regulations
Baltes B., Röhlig K.J.

Thursday, June 17

H-15 »Charlottenburg I« 16:00 – 17:30

PSA/QRA Software – Specific Developments

Chair: Sorman J.

Development of An Integrated Software for Fire and Flooding PSA
Seok H., Kim D.K., Kang S.K.

Integrated PSA Information System INTEPSA
Vitázková J., Cazzoli E., Vitázek K.

TREEZZY2, a Fuzzy Logic Computer Code for Fault Tree and Event Tree Analyses
Bellini S., Casamirra M., Castiglia F., Giardina M.

Defining the Group Importance Measures (GIM) with Applications in Space Shuttle PRA
Hsu F.

I-15 »Charlottenburg II« 16:00 – 17:30

Event and Precursor Analysis – Nuclear Reactors and Industrial Installations

Chair: Hulsmans M.

Probabilistic analysis of Events at Swiss Nuclear Power Plants
Beutler R., Schoen G., Kim I.S., Khatib-Rahbar M.

The Management of Operational Events from CANDU Nuclear Power Plants
Bedreaga L., Florescu G., Apostol M., Nitoi M.

Two Aluminium Powder Explosions, that Occurred in Superficial Finishing Plants
Cavallero D., Debernardi M.L., Marmo L., Piccinini N.

Explosion of Nylon Fibres Occurred in a Textile Plant
Marmo L.

J-15 »Charlottenburg III« 16:00 – 17:30

Safety Management II

Chairs: Johnsen S.O., Cooper J.A.

Managing Safety Rules in European Railways
Hale A., Heijer T., Koornneef F.

Identification and Management of Safety Critical Situations When Different Cultures Interfaces across Borders in European Railway
Herrera I., Vatn J., Johnsen S.O., Rosness R.

Virtual Reality as Tool for Supporting Safety Management Decisions
Golzio L., Colombo S.

How do the Management System's Deficiencies Affect On Safety A Case Study of Accomplishment of FMEA in a Paper Mill
Adl J., Pourparand A.M.

K-15 »Schöneberg« 16:00 – 17:30

Application of Risk Models and Methods in the Chemical Industry I

Chair: Kazarians M.

Development of Operator Decision Support System using HAZOP result
Suzuki K., Ishida M., Nojiri I.

Retrieval and reuse of design rationale for supporting safer plant activities
Shimada Y., Fuchino T.

The Nuclear Physics Gran Sasso National Laboratory in the Gran Sasso Highway Tunnel: the Safety Organisation and the Qualitative-Quantitative methods for Risk Evaluation
Tartaglia R., Tobia M., Giampaoli A.

Risk Mitigation on Ammonia and Methanol Primary Steam Reformers using Retrofitted Safety Instrumented Systems: A Comparative Cost-benefit, Risk-informed Study
Karydas D., Mahnken G.

Thursday, June 17

June 18, 8:00 – 9:00 »Potsdam III«

PLENARY SESSION

Chair: Enrico Zio, Politecnico di Milano

Reliability and Safety Assessment in Offshore and Process Industries
Lars Bodsberg, SINTEF Industrial Management, Research Director

B-16 »Tiergarten I« 9:10 – 10:40

Workshop: „Can Simulation Models Really Help Practice of Maintenance?“

Chair: Zio E.

Panelists
Zio E., Polytechnic of Milan
Berenguer C., Université de Technologie, Troyes
Bris R., VSB Technical University Ostrava
Dubi A., Ben-Gurion University of the Negev
Fedele L., Universita' „La Sapienza“

C-16 »Tiergarten II« 9:10 – 10:40

Marine Regulations and Classification

Chair: Burns D.

Alternative Design: From Prescriptive to Performance Based Maritime Safety
Chantelauve G.

Evaluation of Classification Rules Related to Machinery for an Oil Tanker
Cross R., Ballesio J.

Feasibility of QRA Legislation Regime for Passenger Ships
Soma H., Haugen S.

Environmental Safety of a Seagoing Ship Power Plant
Brandowski A., Liberacki R.

D-16 »Tiergarten III« 9:10 – 10:40

Manufacturing – Product Cycle and Control

Chair: Sato Y.

Design of a Reliability Information System by a Semantic Network
Rzepka B., Wacker M., Bertsche B.

Analysis and Inclusion of Synergies of Common Quality Management Methods for Optimised Quality Assurance
Müller P., Pickard K., Bertsche B.

Product Quality Expectations and Failure Rate Prediction – The Parts Count Method and Causal Analysis
Behr A.

Bayesian Methodology for Reliability Assessment of Products under Development: Application to a Medical Diagnostic System
Droguett E.L., Groen F.J., Mosleh A.

E-16 »Köpenick I« 9:10 – 10:40

Health and Environmental Impacts – Assessment and Decision

Chairs: Baumont G., Kastenberg W.

Public perceptions of energy efficiency and recycling: how these can inform the communications and design processes
Joyce S., Harvey J., Norman P.

A GIS based Approach to Environmental Vulnerability
Bubbico R., Carta R., Di Cave S., Luccone L.G., Mazzarotta B., Silvetti B.

Quantification of Human Health Risk Reduction Following the Introduction of Bt Cotton
Zhou Y., Kastenberg W.

Probabilistic Cost Optimisation of Soil Improvement Strategies
de Vries G.B., van Gelder P.H.A.J.M., Vrijling J.K.

G-16 »Köpenick III« 9:10 – 10:40

Radioactive Waste Management – Reliability Aspects

Chair: Codell R.

Assessment of Operational-Phase Safety of Deep Geological Repositories for Radioactive Waste
McKinley I., Kaku K., Neall F.B., Kawamura H., Asano H.

Reliability Testing of Assumptions about Hydrological Permeability of Drainage Paths in Dangerous Waste Storage Site
Ferjencik M., Ferjencik L.

Alternative Repository Design Options for HLW Disposal in Japan
Umeki H., McKinley I.G., Masuda S., Kawamura H.

Safety Assessment of Large Diameter Boreholes at LILW Storage/Disposal
Korneva S.A., Prozorov L.B., Guskov A.V.

Friday, June 18

H-16 »Charlottenburg I« 9:10 – 10:40

PSA Methodology Aspects – Nuclear Reactor Applications

Chair: Schubert B.

Method for Setting up the Truncation Limit of Probabilistic Safety Assessment
Čepin M.

A Simulation Model for the Frequency and Duration of LOOP
Himanen R.

Setpoint Design Impact on Availability
Ravishankar T.J., Bates L.D., Romagnino J.M.

Methodology for Assessment of Uncertain Input Data for a Level-3 PRA Analysis of a Nuclear Reactor Accident Using MACCS2
Bixler N.E., Morrow C.W., Phillips J.M., Fatenejad M., Mitchell J.

I-16 »Charlottenburg II« 9:10 – 10:40

Event and Precursor Analysis in Various Industries

Chair: Knochenhauer M.

A method for developing and structuring risk activity indicators for major accidents
Vinnem J.E., Veire G., Knudsen B.H., Aven T.

Using Bayesian Networks to Model Accident Causation in the UK Railway Industry
Marsh W., Bearfield G.

A Barrier Model for Road Traffic Applied to Accident Analysis
Alteren B., Hokstad P., Moe D., Sakshaug K.

Collection and Utilisation of Accident Data within the Norwegian Fishing Fleet
Sandtorv H., Okstad E., Aasjord H.

K-16 »Schöneberg« 9:10 – 10:40

Application of Risk Models and Methods in the Chemical Industry III

Chair: Karydas D.

Characterising the Impact of Toxic Emissions on Human Targets in the Proximity of an Industrial Site
Luccone L.G., Mazzarotta B., Silvetti B.

Early Detection of Gas Dispersion Accident through a Neural Network Based Expert System
Celso A., D'Urso D., Trapani N., Spampinato S.

A Model-Based Soft Sensor to Avoid Explosions in Direct Heaters Due to Skin Point Threshold Overtaking
Baldacci S., Hvala M.

Analysis of accidental scenarios and flammable liquid classes, according to the review of Metodo Speditivo
Tucci M., Giagnoni L., Cappelli I., Gavilli L., Mossa Verre M.

June 18, 11:10 – 12:40 »Potsdam III«

CLOSING SESSION

11:10

Insights and Lessons Learned

Pressing Issues, Emerging Ideas and Future Challenges Presented by Young Generation Programme Participants
Chair: Dirk Proske, Dresden University of Technology

11:40

Plenary

Risk Informed Regulation – Move Towards Realism
Ashok Thadani, US NRC
Chair: Sabyasachi Chakraborty, Swiss Federal Nuclear Safety Inspectorate (HSK)

12:20

Prospects on PSAM 8 and ESREL ´05

David H. Johnson, ABS Consulting, General Chair PSAM 8
Krzysztof Kolowrocki, Gdynia Maritime University, Conference Chair ESREL ´05

12:30

Closing Remarks

Cornelia Spitzer and Ulrich Schmocker, General and Technical Programme Chairs

Friday, June 18

List of Sessions