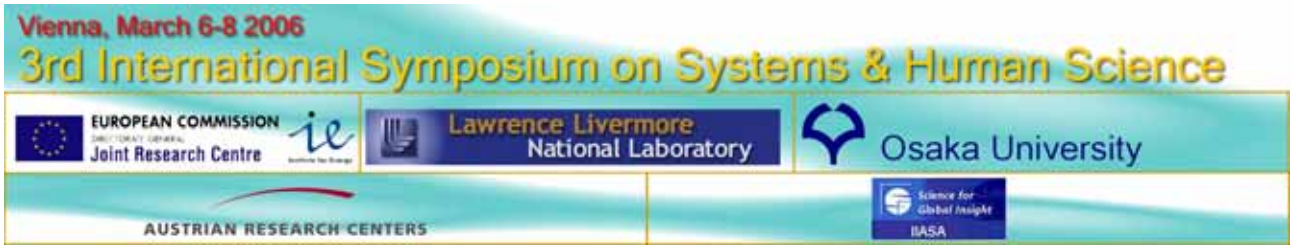

1st Announcement

3rd International Symposium on Systems & Human Science: Complex Systems Approaches for Safety, Security and Reliability

SSR 2006

March 6-8, 2006

Palais Daun Kinsky, Vienna, Austria

Organised by:

European Commission - Joint Research Centre- Institute for Energy (JRC-IE)

Lawrence Livermore National Laboratory (LLNL), USA

Osaka University, Japan

Austrian Research Centers (ARCS), Austria

International Institute for Applied Systems Analysis (IIASA)

In cooperation with:

IEEE SMC

The Third International Symposium on Systems and Human Science (SSR2006) will be held at the Palais Daun Kinsky in the historic centre of Vienna, Austria (http://www.palaisevents.at) on March 6-8, 2006. This symposium will build on the success of the first two such symposia, SSR2003, hosted by Osaka University in Osaka, Japan, and SSR2005, hosted by Lawrence Livermore National Laboratory in San Francisco, USA.

These symposia are intended to facilitate the development of new ideas and approaches for the 21st Century to support creation and evaluation of engineered complex systems -- consisting of machine, software, and human elements -- on which our modern societies increasingly depend for safety, security, and well being. These require the integration of many disciplines in science and engineering, including the human sciences.

Securing and supporting our daily life, building reliable infrastructures against large scale disasters, and preventing unexpected human errors are crucial issues in our highly developed societies which depend on complex, interacting systems. This symposium will offer a forum for researchers and engineers to discuss the latest theories, systems, and applications in a wide spectrum of arenas.

Vienna, March 6-8 2006
3rd International Symposium on Systems & Human Science
EUROPEAN COMMISSION Joint Research Centre
Lawrence Livermore National Laboratory
Osaka University
AUSTRIAN RESEARCH CENTERS
IIASA

General Topics of Interest

- Integration of systems and human sciences
- Complexity, uncertainty, and nonlinearity
- Evaluation of complex systems
- Sensors, communications, and data fusion
- Roles of simulation
- Human and organizational behaviour
- Situation awareness and incident response
- Networks
- Network and systems security
- Physical and engineered systems
- Robotics
- Socio-economic systems
- Concepts, formalisms, methods and tools
- Risk management and decision analysis

Specific Topics for SSR 2006

Uncertainty & Qualification of Systems Analysis

Uncertainty is a major issue in most engineering and natural systems, from energy facilities and transport infrastructures to ecological systems. Depending on the system, main uncertainties stem from different sources, such as the capability to explain the behaviour of the system (are we able to model the system? are there competing models? is it necessary to model the system with a surrogate?), the data needed to monitor or to explain its behaviour (no data available, scarce data, huge quantity of data) and the circumstances under which the system performance will evolve. ***The main question here is to be able to determine how confident we are or how much we trust the results which we obtain from modelling systems.***

Research questions could be:

- *What is "quality" in a systems analysis?*
- *What are the types of models which we are using? (heuristic, deterministic, stochastic, etc.).*
- *What are they based upon? Is their level of detail adequate for the specific purpose? Have they been validated? Is validation a must?*
- *Is expert judgment a key issue in the analysis? Do we use it for model development as well as for information collection? Are we using it the right way? Did we check its quality and, if yes, how?*
- *How to assess and map the quality of available safety / risk / reliability / availability assessments?*
- *How to integrate the views from different stakeholders and expertises: system analysts, risk assessors, reliability experts, communication experts, industry, authorities, NGOs, media, etc.*

Agent Based Modelling

Agent Based Modelling expands existing capabilities to address risk-informed policy making. Besides the conceptually different philosophy of running simulations with adaptive systems, the agent approach also allows the application and merging of trans-disciplinary knowledge and paradigms as endogenous to risk-informed processes, rather than as having to model them as exogenous factors.

This might be of particular relevance when modelling threats to infrastructures which are closely interwoven within social structures, such as energy infrastructures:

- *How predictable are social strategies which are at the basis of, say, terrorist threats?*
- *What kind of uncertainties are involved in interactions between human societies and the biosphere in which they co-exist?*
- *What is predictable and what is fundamentally not?*
- ***In general, what is the potential of using agent based models, originally coming from emergency management type of applications, in technological risk assessments?***

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Important Dates

Abstract submission: 9 December, 2005
Acceptance of Abstracts: 16 January, 2006
Full Papers/Presentations Submission: 13 February, 2006
Symposium: 6-8 March, 2006

Abstracts as well as full presentations and papers should be sent in electronic form directly to one of the Organisers' e-mail address by the designated deadlines. The length of contributions should fit within a 30 min presentation & discussion time and papers should not exceed a maximum length of 15 A4 pages. The papers will be accepted after the reviewing process performed by the members of the Organising and Programme Committee. Accepted papers will be published in the Symposium Proceedings.

Organization

General Co-chairs:

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Prof. Tatsuo Arai, Osaka University
Dr. Helmut Krünes, ARCS

Advisory Committee:

Prof. Hiroyuki Tamura, Kansai University
Dr. Edwin Jones, LLNL
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REGISTRATION
Registration forms can be downloaded from:
http://www.energyrisks.jrc.nl
Registration deadline: 13 February 2006
Registration fee: 250 Euro (speakers are exempt of this fee)
This includes lunches and coffee breaks at the meeting place during the three Conference days as well as the Proceedings on CD-ROM.