

Agenda and Abstracts of

The First TRIZ Symposium in Japan

To be held by the Collaborative Board of TRIZ Promoters and Users in Japan
on Sept. 1 - 3, 2005, at Shuzenji, Izu, Japan

Jun. 10, 2005 TN

Sept. 1, 2005 (Thursday)

13:30 - (Registration)

14:00 - 14:20 (Opening) **Welcome to the First TRIZ Symposium in Japan**

14:20 - 15:30 (Keynote 1) **A New Generation of TRIZ**

Toru Nakagawa (Osaka Gakuin University) (#12)

TRIZ has been introduced in the Western countries over these 10 years; while the understanding of TRIZ proceeds, it also becomes clear that we need a new generation of it. Since TRIZ traditionally wants to make its knowledge bases and methods bigger and more complex, there emerges a serious need of a new methodology much simpler and yet effective for creatively solving problems. After well digesting the thoughts in TRIZ, they should be reorganized into a new methodology, which should be easy to learn and effective to apply for creatively solving a wide variety of real problems. USIT is such a new generation of TRIZ, the present author believes. The overall structure of USIT, being represented with the Six-Box Scheme, offers a new universal framework of creative problem solving. We are free from the ambiguity of analogical thinking and have obtained a new methodology for solving problems creatively in a smooth and effective way. USIT has been applied in several industries in Japan.

15:50 - 16:30 (Oral 1) **Application of Matrix2003 to Electrical System Development and Comprehensively Comparative Evaluation of Classical and Contemporary Contradiction Matrices**

Setsuo Arita (Hitachi, Ltd.) (#15)

16:30 - 17:10 (Oral 2) **TRIZ Application in Development of Climbing Robots**

Valery Krasnoslobodtsev, Richard Langevin

(Technical Innovation Center, Inc., USA) (#21)

Paper is devoted to consideration of the practical application of the Algorithm of Inventive Problem Solving (ARIZ) during the development process of the robot adaptive vacuum feet. Also TRIZ technology evolution trends have been used for development of the new structures of the autonomous climbing robot. These robots are being used for cleaning, finishing and diagnostics of arbitrarily oriented surfaces in space for instance shop windows, glass vestibules, nuclear reactor walls and oil tank surfaces. The new designs of the vacuum adaptive feet and climbing robots have been developed with the aid of applied ARIZ and other TRIZ tools. The specific schemes and designs of vacuum adaptive feet and robots are described. The new vacuum feet can operate on many different surfaces including uneven and cracked ones. This paper has been illustrated with the pictures of real robots and their performances. The outcome of this project was 20 patents with the application of some of them in the current robot's design. This paper is useful for TRIZ

users who like a real case study with measured results and demonstrate how TRIZ was used to develop the solutions.

17:30 - 18:10 (Oral 3) **Promotion of TRIZ method in Matsushita Electric Industrial Company Group**
Koichi Kumagai (Matsushita Electric Industrial Co.,LTD) (#08)

18:30 - 20:10 (Reception) (Free discussion)

20:10 - 21:40 (Informal Group Discussion)
(Possible themes: How to promote TRIZ; How to apply TRIZ; etc.)

Sept. 2, 2005 (Friday)

8:40 - 9:00 (Speech) **On "Collaborative Board of TRIZ Promoters and Users in Japan"**

9:00 - 10:20 (Keynote 2) **TRIZ Critical SWOT: Systematic Innovation Today And Tomorrow**
Darrell Mann (Systematic Innovation Ltd, UK) (#05)

TRIZ is approaching a critical point in its history. What happens in the next two or three years will determine whether it grows into a global phenomenon or shrinks into cult-like obscurity. This presentation starts with an examination of the critical strengths, weaknesses, opportunities and threats of the method today, and how they might change as the future unfolds. This analysis is then used as the basis for defining the key conflicts and contradictions that will need to be overcome if TRIZ is to follow the path to success. The presentation will discuss a selection of the identified contradictions and explore how TRIZ itself might be used to provide practical and valid solutions. Amongst the contradictions to be discussed will be the parallel needs for TRIZ to be structured and unstructured, simple and complex, independent and integrated, consistent and adaptive. The presentation will also explore the dangers and pitfalls of case studies, why people don't buy into change, and why those most knowledgeable about the method are probably the least well suited to help promote it. A final summary will propose a number of modifications to the DNA structure of TRIZ that may help it to flourish and grow at individual, corporate and global scales.

10:40 - 11:20 (Oral 4) **Fuji Film Style Technical Problem Analysis Method : Refinements On USIT Problem Analysis**
Hideaki Kosha (Fuji Photo Film Co., Ltd.) (#09)

11:20 - 12:00 (Oral 5) **USIT Application in the Subject of the Relief Character Printing**
Akihiko Noda, Yoshiya Imoto, Takashi Yamamuro, Makoto Hirota, Kunio Yamada, Katsumi Sakamaki, Toshiyuki Yano, Shigeru Kasuya
(Fuji Xerox Co.) (#10)

12:00 - 12:20 (Brief Introduction to Poster Presentations) (by all the authors)

12:20 - 13:20 (Lunch)

13:20 - 14:00 (Oral 6) **TRIZ for Software: Object-Oriented Programming Reviewed**

Kevin C. Rea (REA Consulting and TRIZ for Software, USA) (#11)

As the complexity of software continues to rise, systematic innovation is needed to build robust software systems at an ever increasing rate of quality. Critical systems depend on software to be correct and many efforts are underway to validate and verify that software meets its desired specification. However, while both academia and industry tackle software specification and verification, there exist tools within TRIZ that can improve overall software engineering results. At present, Object-Oriented Programming (OOP) is the most popular approach to the analysis, design, and implementation of software systems. This report examines the concepts of Object-Oriented Programming (OOP) from the viewpoint of TRIZ. Popular modeling approaches such as the Unified Modeling Language (UML) are examined to see where, when and how TRIZ can be used to enhance the modeling results at different stages of the software life-cycle. Additionally, aspects of OOP that urge TRIZ will be presented. A final section of the paper will describe a case study example of using TRIZ in Object-Oriented Programming.

14:00 - 14:40 (Vendor Presentation 1) **Proposal on Effective Strategy and Organization for Promoting TRIZ in Companies**

Yoshihisa Konishi (Mitsubishi Research Institute, Inc.) (#17)

15:00 - 15:40 (Vendor Presentation 2) **On History and Evolution of Problem Solving Tools in TRIZ: How to Apply Them**

Shinsuke Kurosawa (The SANNO Institute of Management) (#18)

15:40 - 16:20 (Vendor Presentation 3) **SKI's Approach for penetrating TRIZ: Mann's Systematic Innovation Method and CREAM Software Tools**

Masatoshi Hotta (Sozo Kaihatsu Initiative) (#16)

16:40 - 18:00 (Poster and Demo Session)

(Poster Presentations and Vendors' Demo & PR)

(Poster 1) **Concepts of Objects and Logical Enhancement of ASIT**

Takahara Toshio (#03)

Object is defined as something that interacts mutually on another thing on the authority of Kant, Hegel and Marx. As the minimal object set for real world, I set system objects which express material being and contents of information that are born by physical entity, and process objects which express processes of action. Both objects have their granularity.

ASIT (the acronym for "Advanced Systematic Inventive Thinking") is a thinking method derived from TRIZ as well as USIT. ASIT has basically the ability to deal explicitly with both system object and process object by its own logic without using analogy. I expanded ASIT logically by adding three tools.

(Poster 2) **Comparative Study of Two Contradiction Matrices using Business Model Creating Method**

Atsuko Ishida (Hitachi, Ltd.) (#07)

(Poster 3) The Effectiveness of TRIZ Techniques in the MOT (Management of Technology)-Education Program

Manabu Sawaguchi (The SANNO Institute of Management) (#13)

About 10 years had passed when TRIZ techniques were presented in Western countries (Mainly USA, Europe and Japan). However, the recognition of TRIZ is still being developed now but some companies in Japan. Therefore, this time I would like to describe a series of TRIZ techniques as useful tools on the field of MOT-Education Program. And I want to consider if TRIZ become established as effective tools in the Japanese manufacturers. Concretely speaking, I am going to research the possibility of development of TRIZ with introducing TRIZ-EP focusing on TRIZ techniques I applied at one of Japanese companies as the core programs of MOT-EP.

(Poster 4) Promoting the Intellectual Creativity Cycle by the Combined Use of TRIZ an Patent Claim Markup Language (PCML)

Toshimitsu Kataoka (Pat-Brain) (#19)

(Demo & PR 1) (MRI Systems)

(Demo & PR 2) (The SANNO Institute of Management)

(Demo & PR 3) (Sozo Kaihatsu Initiative)

18:00 - 19:00 (Dinner)

19:00 - 21:00 (Informal Group Discussion)

(Possible themes: How to promote TRIZ; How to apply TRIZ; etc.)

Sept. 3, 2005 (Saturday)

8:40 - 9:20 (Oral 7) **Understanding and Analysis of Problem**

Ik Cheol Kim (Tecinfo, Korea) (#01)

Many kinds of problem solving tools, such as TRIZ, USIT, KT, NM, are developed because problem solving is important. Especially TRIZ is real tool to understand the source of problem. But most of these tools are focused only for problem solving, not sufficient for problem itself. And 4 stage of problem solving process, find-define-solving-evaluation is not enough also. Therefore, lots of errors are happened and makes hard in problem solving procedure. Problem finding and define are important as solving.

This report represents the fundamental checking element during the problem solving process.

9:20 - 10:00 (Oral 8) **Comparative Functional Test of TRIZ-AFD and KT-PA in Failure Analysis using Actual Product Accident Information**

Fuminobu Takahashi (Hitachi, Ltd.) (#14)

10:00 - 10:40 (Oral 9) **TRIZ Thinking Process for Problem Solving**

Masahiro Kuwahara (IDEA) (#22)

11:00 - 11:40 (Oral 10) **The Proposal of "the Preparation of the Patent Specification as the Creative Activities" with a Central Focus on the Corresponding Relations between the Logic of Creation and the Patent Law**

Kimihiko Hasegawa (Sano & Associates International Patent Firm) (#06)

Generally, when creation functions, it is never conscious of the patent. And, it is never conscious of the creative activities when an invention proposal document or a patent specification is made after the invention is completed. However, the innovative invention can be efficiently produced if the researcher who is the leading part of the creative activities, and an engineer have an idea like a patent. And, if the person in charge of Intellectual Property Rights has a creative idea, researcher's and engineer's invention is supported, and hence, a broad and strong patent specification can be made. In order to realize the above, it is shown that using the appraisal standard of the invention in the patent law together with the inventions technique which established the creative problem solution technique by analyzing invention activities and patent information is most suitable.

11:40 - 12:20 (Oral 11) **Building up Strong Patent Net More Effectively Using the Essence of TRIZ**

Kimio Nishimura (NISSAN Motors Co.) (#20)

It is very important for our company to build up strong patent net more effectively than other companies and get technical advantage in new technical field. In this report, I will comment on the process to build up strong patent net more effectively using the essence of TRIZ.

12:20 - 13:20 (Lunch)

13:20 - 14:00 (Oral 12) **Active Use of TRIZ in Integration with VE (VM)**

Makoto Unno (Kawasaki Heavy Industries, Ltd.) (#02)

14:00 - 15:00 (Closing Discussion) **How to Introduce, Promote, and Apply TRIZ in Japan**

15:00 (Closed)