

The 14th Japan TRIZ Symposium 2018

Abstracts

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Symposium Executive Committee

EI01 Mi Jeong Song (Samsung Electronics)

(Keynote lecture)

Technology Evolution Opportunity Mining (TEOM) for patent analysis and strategic invention

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As the speed of technology innovation increases, reading current state of art and configuring probable area of future become more significant than any other era. In spite of the extensive research, the research community has made few outcomes to guide the future direction of innovation, considering the general evolution patterns of technical systems. To overcome poor guidance of future evolution, the authors have proposed a novel approach so called

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TEOM(technology evolution opportunity matrix) to predict prioritized directions of innovation as well as to create the most promising and tangible archetype design. TEOM clearly visualizes vacant coordinates of probable system evolution space. TEOM could enables engineers to understand current evolution level of technical system as well as to suggest inventions. Coupling evolution map for birdview of whole technical system and TEOM for core part of the system showed best performance for system evolution prediction in the field project of Samsung electronics.

The authors expect that this study could contribute for those in charge of innovation management or new product development processes to configure promising future image.

J100 Yoshihisa Konishi (Japan TRIZ Society)

(Tutorial)

Innovation Technology TRIZ

Yoshihisa Konishi (Japan TRIZ Society)

(Japanese only)

J102 Tatsushi Kusumoto (Shinwa Controls Co., Ltd.)

(Special lecture)

Challenging of a Small-and-Medium Enterprise

for Product Development

Systematic Development Technique and Innovation

Tatsushi Kusumoto (Shinwa Controls Co., Ltd.)

Starting from manufacturing and selling general industrial use electromagnetic valves, Shinwa Controls Co., Ltd. entered into the semiconductor-related equipment for environment, and saw foundation 55 years this year. When large financial crises were encountered by 2 economic shocks, namely, the bursting of the information-technology bubble and the Lehman Shock, we were able to straddle with the uptrend of the market condition thereafter, but there was no fast growth.

Although we entered into the industry depending on major semiconductor production equipment manufacturers and acquired information efficiently from stable customers, there was only a craftsmanship bombarded with time of delivery and cost promoting development as the customer wished without structuring an original marketing style.

We succeeded in reforming Shinwa's "craftsmanship" through the production innovative activity beginning in 2006 and the systematic technique starting in 2010. How could we efficiently utilize the restricted resource of a small and medium-sized enterprise and produce products to appeal to the a market? I would like to report from a viewpoint of practical use of the systematic technique.

J01 Kurosawa, Shinsuke (trizstudy.com)

What is the Problem?

Kurosawa, Shinsuke (trizstudy.com)

It is known widely that Altshuller's having considered the subject at the beginning is "solving a problem so that it may lead to invention", and it is the first step of the development to TRIZ formation that he has noticed "The inconsistency which hid in the situation must be specified as it, and I have to solve it."

However, although the neighborhood is that Alexander Kudriavtsev's keynote lecture performed at the symposium in 2016 was also discussed, present-day TRIZ is progressing greatly from the stage. TRIZ will be left by the request of a time if it does not change. Therefore, I can say that TRIZ has evolved. Reviewing the presentations at these TRIZ symposia, I think that TRIZ in Japan also has evolved remarkably. However, it seems that I have often been argued since ten year and 20 or before in the TRIZ community in the world on the other hand by the case "is discovered" once again in Japan.

Although it is not timely, Altshuller -- a subject -- how -- arranging how GEN3 and the Ideation which are the three currents with that of looking at and the present main TRIZ community, and OTSM-TRIZ redefined the subject would like to consider what kind of thing the subject for present-day TRIZ is. I unite and introduce the characteristic cut end which the aloof and proud TRIZ researcher who became independent of such a big current considers.

J02 Mai Miyahara (OM Kiki Co., Ltd.)

Effects and Problems Coming in Sight

Utilizing TRIZ for Problem Solving of Existing Goods

- **Problem Solving of a Deferment Handrail as an Example** -

**Mai Miyahara, Masayuki Kawahara, Kouichi Watanabe,
Naofumi Takachi, Tomoya Shinkawa, Yukari Tamoto,
Harumi Nakagawa, Arisa Yoshida, Masatoshi Ohsumi
(OM Kiki Co., Ltd.)**

In recent years, our company's inquiry of elderly-people-oriented welfare equipment is increasing. I made one of the employee knowledge "I will make a visitor's thought into a form" into the motto, made the sales maker's demand into the form, and have tackled development by the method of harnessing the conventional technology. However, there are also goods in which sales make little increase in inside.

So, catching the user's needs firmly, we wanted to propose goods in a new way of thinking to the sales maker, which are better for the elderly people who actually use welfare equipment, the families supporting their life and the renting business company, and develop selling goods, utilized QFD-TRIZ, first of all, to tackle problem solving of the existing goods.

I will explain the practical use effect which we felt, the target, and the subject for utilizing more, also mixing the example of the idea which utilized QFD-TRIZ and was created about the practical use result.

J03 Tomohiko Katagiri (IDEA Inc.)

**Reaching to an extreme of contradiction problems
by TRIZ+TOC**

**- For extending the scope of the problem
and epoch-making, comprehensive idea creation -**

Tomohiko Katagiri (IDEA Inc.)

TRIZ is the process systematized based on huge patent information for the purpose of solution of a technical problem for problem solving. [Invention principle] and [principle of separation], which are especially typical way-of-thinking tools are tools for creating ideas which solve without regarding a problem as "inconsistency" and reaching a compromise in it.

On the other hand, the thinking processes of TOC (Theory Of Constraints) are a series of processes for "solving the problem (plan restrictions) of the organization between which man intervenes." It is a tool for creating ideas which cancel without a [confrontation dissolution figure] regarding the essence of the problem as confrontation (dilemma) in it, and reaching a compromise in the confrontation.

Although the problem and approach which the writer makes both object differ from each other, I regard a problem as inconsistency/confrontation, Since it has the common purpose of aiming at solutions without a compromise, the scope in question spreads with such combination, and I think that creation of more nearly epoch-making and more comprehensive solution is attained.

As opposed to the technical problem which TRIZ makes elated while this paper checks both feature, I would like to introduce the example which uses the [confrontation dissolution figure] of TOC as the hypostatization in question and a tool of overthrow of mental inertia, and the example which applies the [invention principle] and the [principle of separation] of TRIZ to the problem of the organization between which the human being whom TOC makes elated intervenes.

J04 Kazuhiro Sakakibara (TOYO TIRE & RUBBER CO.,LTD)

Case introduction of a tire technical development utilizing the TRIZ technique

Kazuhiro Sakakibara (TOYO TIRE & RUBBER CO.,LTD)

TOYO TIRES, considering "is surprise in the tire?" as a catchphrase, is pursuing every day "development which reverses unique imagination, the technical capabilities of innovation,

and common sense" aiming at the product development which can provide the clients with impression, and the motor vehicle industry which encloses a tire, It is called a drastic change once in 100 years term represented by electric and automatic operation, and early realization of the innovation which induces new added value from the new way of thinking is called for.

Last year and the year before, we were allowed to introduce the structure and measure which utilized a degree, QFD, and TRIZ and which were uniquely devised about the in-company innovation promotion activities of our company.

As an example of the tire technical development which utilized this innovation system, a degree mainly utilizes the TRIZ technique and introduces this year the period until it results in solution and utilization of the problem which a tire has.

J05 Toru Nakagawa (Osaka Gakuin University, Japan)

World TRIZ Sites Project (WTSP) for Building and Maintaining a Catalog of Global TRIZ Resources

**Toru Nakagawa (Osaka Gakuin University, Japan),
Darrell Mann (Systematic Innovation, Inc., UK)**

For these three decades, TRIZ has been proliferated much beyond ex-USSR and across the world to the extent that the various activities, achievements, and accumulated knowledge are not viewable easily. We know that many researchers and practitioners are working on TRIZ actively and presenting/posting their activities and results in conferences, journals, Web sites, etc. In typical Internet search on TRIZ, however, a flood of not-so-high quality information actually hides valuable information resources. So we have recently started World TRIZ Sites Project (WTSP). Its initial goal is to build a catalog of TRIZ-related Web sites in the World. In various countries good and useful Web sites are operated in their own languages, including English. Thus we should work Together! Connected!! Once we build such a catalog in English, we can share it widely in various language editions. Such information sharing will raise a Global Network of Public Web Sites in TRIZ.

J06 Sadao Nishii (JNC Corporation)

Effective use of quotation information and examination documents in patent examination

- A technique to grasp "evolution" easily -

Sadao Nishii (JNC Corporation), Toshimitsu Kataoka (Patbrain Inc.)

In invention by which patent application was carried out, "applicant quotation," which an applicant writes in a specification as [prior art literature], and "judge quotation," which a judge mentions as a cited reference exist. These quotation information can be checked by referring to the examination documents (patent file wrapper) in patent examination from various databases or the Patent Office HP.

I am using these pieces of information effectively this time, and introduce the technique of grasping technical "evolution." By using the written opinion which serves as an applicant's counterargument to the notice-of-reasons-for-rejection document from a judge especially, I found out I could grasp "evolution" simple with a high possibility rather than having carried out comparison examination of the official report of application concerned and a cited reference at least.

In addition, these contents are one of the results in the subject of research of the Japan TRIZ Society Intellectual Property Creation Research Subcommittee, which is tackling the subject to create an "evolution tree" for the service robot.

J07 Tsunamasa Shioya (Japan TRIZ Society)

Evolution diagram creation using I-TRIZ PF

- How to harness open patents "group" in TRIZ -

Tsunamasa Shioya (Japan TRIZ Society)

At the Intellectual Property Creation Research Subcommittee, I am inquiring by drawing up the three-year plan to create the "evolution tree" for a service robot (non-industrial robot) including a communication robot. I looked back upon the history for about 30 years after a registered trademark, a design official report, and an open patent and the Internet information in the 1st year. In this process, I devised the method of creating an evolution diagram from an open patent, and reported the outline.

In this report, I introduce the concrete creation method of an evolution diagram among the results of research for the 2nd year. It is the very simple procedure of finishing to an evolution diagram, by carrying out one affair at a time module expression of the patent specification by I-TRIZ PF, and comparing it.

I will also introduce that the application of this technique is not limited to open patent information, but that there is possible use also in non-technical fields as the history of problem solving in an organization, a project, etc.

J08 Takayoshi Ohtsu (National Institute of Technology, Numazu College)

Application of TRIZ to the intellectual property educational activity at National Institute of Technology, Numazu College

Takayoshi Ohtsu (National Institute of Technology, Numazu College)

"Intellectual Property Strategic Program 2017" is determined on May 16, 2017, The intellectual property strategy which thought as important three viewpoints, construction of the intellectual property system used as the base of the 4th Industrial Revolution, the district creation which utilized the latent powers of intellectual property and innovation promotion,

and the contents industry activation at which I gazed to the point in 2020, will be advanced. Therefore, understanding the local characteristic, I discovered the subject of a local company and a self-governing body, and the talented people who concentrated ideas and had business solution capability are needed. Then, I promoted the intellectual property educational activity which utilized the local characteristic. As the training of an intellectual property mind (creation), I raise the concern about the intellectual property education of a low grade, and heighten an understanding of the local characteristic of upper classes, and business solution capability as training of a floatation mind (protection and practical use). To the subject, I planned the intellectual property seminar of each grade student attendance of all the school-affairs subcommittee aiming at the intellectual property education from a low grade, and opened a course of "the society and engineering" of a second grader "mini-research" and a fourth grader from a viewpoint with the area. Furthermore, I established the club "TKY (school for commoners) of intellectual property" specially, utilized TRIZ taking advantage of the local characteristic, and performed the project activities of KV-BIKE (battery bicycle), food education, flower arrangement, and deep sea.

J09 Kimihiko Hasegawa (Japan TRIZ Society)

Creation example of the service robot's evolution tree

(Part 2)

- Proposal of an evolution tree model, and results of the pilot application -

**Kimihiko Hasegawa, Toshimitsu Kataoka, Narumi Nagase, Shigeru Suzuki,
Hirotsugu Ishihara, Sadao Nishii, Takuya Fujii, Tsunamasa Shioya
(Intellectual Property Creation Research Subcommittee, Japan TRIZ Society)**

Since the three-year plan to create the "evolution tree" for the service robot (non-industrial robot) including communication robots was formed, I will report the research findings for the

2nd year.

We aim at creating the map (evolution tree of a - present and future type in the past) which applied the line of general evolution of TRIZ in accordance with the service robot's characteristic the 2nd year. We selected the line of the evolution considered to be suitable to express the state of evolution of the service robot, and carried out multi-data input of the model (hypothesis) of the "evolution tree" which combined the line of those evolution. I will introduce this time the contents which could be known from the result of mapping the data (1985.01.01 to 2017.12.31) of the publication of patent applications contained in the concept of both a service robot and a communication robot on the model of the evolution tree of these plurality.

J10 Osamu Ikeda (Japan TRIZ Society)

Research of a general-purpose application method of the "evolution trend"

- Classification of the "evolution trend"

based on main elements of management,

and considering the application case -

**Business and Management TRIZ Research Subcommittee,
Japan TRIZ Society**

**Osamu Ikeda (NIKON CORPORATION),
Hisataka Izawa (Sony Corporation),
Mamoru Ohashi (Hitachi Metals, Ltd),
Fumiko Kikuchi (Pioneer Corporation),
Yasuo Moriya (FUJITSU ADVANCED TECHNOLOGIES, LTD.),
Ikuo Yoshizawa (JIYUGAOKA SANNO College)**

In this study group, we are working for the purpose of presenting spread and development of TRIZ to the subject of business, management, and the management field aiming at researches for utilizing TRIZ, such as the application method and a case study, and guidance construction.

In previous activities, we applied TRIZ thinking and a technique, and analyzed "a hot-selling product and service", and the creation method of a "new product and service" system -- we carried out the fundamental framework design. We showed the examination result here at the 9th TRIZ symposium (2013). In the shown fundamental framework, we have applied the evolution trend of business management system of Darrell L. Mann's proposal. In the examination process here, we were effective in the evolution trend of a business management system, and acquired the necessity of making for the tool which moreover improves convenience. Then, we created the intelligible description about the contents of a definition of the evolution trend of a business management system of Darrell L. Mann's proposal, and the contents of a definition of an evolution level as far as possible. About this examination result, we showed at the 10th TRIZ symposium (2014) with the practical use example.

In the 11th TRIZ symposium (2015), since the analysis tools (the inconsistency matrix, the invention principle and the evolution trend, the evolution level, etc. of the management system) of the TRIZ style were about ready from the previous activities, we selected "the business model with a sufficient line" from all fields partly, and analyzed the success factor by the TRIZ style (reverse). And in the 12th TRIZ symposium (2016), we specified the business model as the "LCC (low cost carrier) model", and explored the evolution system business model with the application of the framework of TRIZ style business model creation. Then, we focused on the specific tool and made the application method of the "evolution trend" of Darrell L. Mann's proposal applicable to examination this time.

1. We make it sublimate to the tool which can have a certain amount of flexibility from personal application as the application method of an "evolution trend."
2. We set up and classify the main axes of management of the "evolution trend" which makes a core in the 3rd clause of contents explanation, and the 5th clause, and perform the case study which paid its attention to the specific business model.

Proposal and verification of a creation technique by the extreme-opposite analogy approach utilizing TRIZ

Masao Oda (MITSUBISHI ELECTRIC Corp.)

Companies are asked for the creation of value which gives a customer new impression. For that purpose, it is necessary to find out customer's potential demands In addition to already clear actual ones, and to create the basic idea of a product or service which brings about new value. In this paper, I propose a creation technique of a basic idea which meets a customer's potential demand in VE process of a plan stage, and verify its validity.

The creation technique by the extreme-opposite analogy approach to propose conceives the thing of the extreme opposite the object to develop notionally. And I create the basic idea which obtains a new focus at a key and meets a customer's potential demand in the thing and the characteristic of the extreme opposite. I was able to utilize this creation technique for the development of the environment-monitoring technology of a recycling factory, I was able to obtain the basic idea which meets the customer's potential demand, and was able to build the factory exceeding the customer's expectation of the concept.

Furthermore, I took in the Inventive Principle of TRIZ to the creation technique by extreme-opposite analogy approach, gave the technical viewpoint that universality was higher, and improved validity further. I was able to apply this creation technique to development of the collection management technique of the chlorofluorocarbon for coolants of a recycling factory, and was able to realize the rate of the collection of chlorofluorocarbon of the domestic record level.

J12 Takashi Ogata (IDEA Inc.)

A new product plan combining Time-space SN Matrix and TRIZ

**- An idea of the customer base
adopting the philosophy of UX view -**

Takashi Ogata (IDEA Inc.)

In recent years, IT technology, such as A.I.(Artificial Intelligence) and IoT, shows evolution and spread at a dramatic speed on many business, and the big change to "Koto" from "Mono" is progressing in all the industrial fields with the motor vehicle industry in front, by U.S. huge IT company guidance.

The writer adopted the philosophy of UX (User Experience) view in order to correspond to this change, conducting action analysis of the customer using the time SN matrix* by the function (purpose intention), extracted the demand to operation, grasped the potential needs of the customer to a new product efficiently by changing into a space SN matrix, and found out a method of embodying and conceiving using TRIZ. This method is practiced in two or more companies, and is achieving effect.

Since it has turned out that it is an effective means not only a product simple substance but when planning the solution business and service which surround package goods and a product, I introduce this approach method.

(*: November, 2015 21st Quality Functional Deployment Symposium
Ogata [former Olympus, Inc.] presentation data)

J13 Masayuki Nakano (Marugo Rubber Industries,Ltd.)

Measures against shear/slip of a rubber hose

Masayuki Nakano (Marugo Rubber Industries,Ltd.)

When introducing TRIZ for the first time at our company, I introduce an example to which the trainee of five persons x 2 teams set up the theme actually faced with a difficult problem through the seminar for seven days, and were in charge of problem solving by instruction of

the consultant.

Although the members of team A were selected from each section of development, design, manufacturing technique and manufacture, and is simple as a theme, I considered it as "Measures against shear/slip of a rubber hose," which faces rough going to solution very much, and, first of all, carried out Cause-Effect Analysis and Function Attribute Analysis for the subject of rubber hose shearing/slipping out of the pipe in which it was inserted because of high temperature, vibration and pulse pressure in stand top durability test, using Goldfire.

Subsequently, I performed idea generation from Invention Principles, Evolution Patterns and Scientific Effects, and I set the horizontal axis as development period, the vertical axis as functionality, created mapping, and groped for the concept of the short, medium and long term realization target by selection and combination of the ideas.

J14 Masahiro Kuwahara (IDEA Inc.)

To solve problems of the manufacturing process creatively

- Through consulting at companies in Taiwan -

Masahiro Kuwahara (IDEA Inc.)

In order to hold customer's demand exactly, to produce an innovative idea from the needs and to realize attractive goods, IDEA Inc. proposes to utilize QFD-TRIZ-TM systematically. The writer has carried out many reports about the method for producing innovative goods not only at the place of consulting but also at past TRIZ symposia.

On the other hand, although it is a well-known fact that the problem-solving thinking method of TRIZ is applicable not only to product development but to problems of a manufacturing process, I think that, until now, it was seldom reported about the concrete way of using and examples in the spot of craftsmanship.

In spite of having developed a new product attractive for the customer, the problem that manufacture becomes difficult is one which arises the more innovative the new product is. And in many cases, since the problem will be solved in the try and error, it is hung up to conventional technologies and systems.

TRIZ is not a technique restricted to innovative goods idea creation but a more nearly general-purpose idea creation theory. Therefore, it should make it also possible to solve problems in the manufacturing process from an unprecedented unique viewpoint.

Recently, the writer performed problem-solving consulting by TRIZ at a manufacturer in Taiwan. Then, I was able to create the measure idea about the manufacturing problem which could not be solved fundamentally until now but had only symptomatic treatments (sorting etc.), and was able to acquire the big effect by that cause.

Based on the device then performed, I introduce this time the "practical use method of TRIZ in the manufacturing process" seldom described until now. I am pleased if it becomes an aid of scope expansion of TRIZ in Japan's manufacturing industry.

J15 Koji Matsuda (Shinwa Controls Co., Ltd.)

TRIZ practical use for product planning

Koji Matsuda, Hidemitsu Ooka, Ryoji Ichiyama

(Shinwa Controls Co., Ltd.)

At Shinwa Controls Co., Ltd., we have promoted the development of a high durability electric motor operated valve starting with the QFD/TRIZ success case "Miniaturization of the precision temperature-and-relative-humidity air providing unit", which was tackled from 2010 to 2011, and are continuing TRIZ activities in our product development.

Moreover, we are applying it to operating activities, aiming at consciousness conversion what kind of value we can offer to the market, and are promoting new product development.

In this report, we will introduce the measure in sales promotion activities, performing improvement introduction of the electric motor operated valve reported at the 10th TRIZ Symposium.

J16 Takayoshi Ohtsu (National Institute of Technology, Numazu College)

Analysis of the global Izu Peninsula Geopark

by "Geo-TRIZ"

Takayoshi Ohtsu (National Institute of Technology, Numazu College)

On April 17, 2018, the United Nations Educational, Scientific and Cultural Organization (UNESCO) authorized Izu Peninsula in Shizuoka Prefecture to the "global geopark." A global geopark is the nature park equipped with scientifically important geographical feature and geology. In Japan, Izu Peninsula Geopark was authorized as the 9th site following Lake Toya Usu-zan (Hokkaido), Itoigawa (Niigata), etc. Izu Peninsula was made about 600,000 years ago volcanic island located in the Pacific Ocean colliding Honshu, has a geographical feature of rich change formed by repeated diastrophisms and volcanic activities, and was authorized by the "Japanese geopark" of the domestic version in 2012. 2027 square kilometers of 15 cities and towns of eastern Shizuoka and the Izu area (including the surrounding ocean area) are scope, and there are 114 places "geosite" where precious geology and geographical feature are seen. So, I conducted analysis by the 40 Inventive Principles and Contradiction Matrix of TRIZ for those geosites for the purpose of construction of "Geo-TRIZ," which I learn from global Izu Peninsula Geopark.

J17 Heikan Izumi (Nippon-Bunri University)

Product development technique based on TRIZ and patent information

Heikan Izumi (Nippon-Bunri University)
Manabu Sawaguchi (Waseda University)

This research proposes a technique of drawing an improvement proposal efficiently in product development by showing clearly how they were drawn by extracting an effective patent (called "patents in force") technically out of the patent. Although drawing a development proposal based on laws drawn from patent information, such as Inventive

Principles and Technical Contradiction Matrix, are proposed in TRIZ, there were cases where it was difficult for a common engineer to conceive an effective development proposal only by TRIZ in writers' conventional research. In this research, we propose the development technique which compensated the problem when the effective way of thinking only with TRIZ was difficult, by extracting patents in force out of the patent of the electric shaver, and clarifying the way-of-thinking process.

J18 Kiyohisa Nishiyama (Nagoya University)

A consideration on engineering research support using TRIZ

**From the trial by the School of Engineering and
International Academic Exchange Office, Graduate
School of Engineering at Nagoya University**

**Kiyohisa Nishiyama, Leleito Emanuel
(Nagoya University)**

Now, the field way of thinking across boundaries which was conscious of the innovation creation for a productivity drive is thought as important from problems, such as a future labor force reduction by low birthrate and longevity. On the other hand, for the increase in efficiency of research activities, in the engineering field, subdivision of the field is progressing and compartmentalization of a certain meaning and specialty nature is pointed out. In connection with this, it is thought that various subjects including researchers' communication exist. The presenter has mainly used this for activities, such as international scientific exchange activities for the student of the faculty of technology, English paper writing instruction, and career support for a foreign student, positively as next-generation engineering education which solves the above-mentioned problem positively beginning in the 2015 fiscal year

paying attention to the possibility of TRIZ. This presentation describes the consideration about the subject to the application to the research support in the engineering field of TRIZ which summarized the activity using TRIZ up to now by an applicant, and has been visible from there.

J19 Takashi Shikata (Japan TRIZ Society)

"Education of a New Era" Subcommittee activity report

**Takashi Shikata, Takayoshi Ohtsu, Toshimitsu Kataoka,
Tomohiko Katagiri, Yoshihisa Konishi, Shigeru Hisanaga, Yuji Mihara and
Kurosawa, Shinsuke
(Education of a New Era Research Subcommittee, Japan TRIZ Society)**

The Japanese TRIZ Society's "Education of a New Era" subcommittee started its activity as a subcommittee of the Japanese TRIZ Society in 2014 for the purpose of considering TRIZ as a standpoint about the education which supports the power of living in the world of changing quickly, in the new era.

One of the activities of this subcommittee is to learn from the predecessors' work what kind of experience existed related to education in the TRIZ community so far. This year, we looked over the presentations in the educational special session performed by the International TRIZ Association annual meeting "TRIZfest 2017" held in autumn last year.

Another main point of the subcommittee activity is outputting towards Japanese society in the viewpoint of utilizing TRIZ for education. The current fiscal year -- (1) offering a program which supports the power which is considered mainly for the child of elementary school upper classes of gathering in what is called an "invention club", (2) utilizing the know-how of TRIZ at the place of education for a kindergartener, and (3) sending for community at large in order to raise the recognition of TRIZ. We have just began activities for these three themes.

We have newly started these activities aiming at output from this year. So, today, I will report only those whose certain contents have been settled by now. Since the member of the subcommittee discussed the method of the name for children of the 40 Inventive Principles, and explanation in relation to this, I would like to specifically introduce the outline with the proposal of the program of (1) among three themes.

J20 Hoonhee Kim (ISID)

Application to problem solving and innovation by TRIZ practical use of QFD information

**Hoonhee Kim, Motoki Ano, Naohiko Sakai, Satoru Naraoka
(ISID)**

Quality product development is becoming difficult by that complication of the product went to smart-izing and the car of a mobile phone rapidly like IT apparatus loading in recent years, and naturally linkage with other products being called for. Therefore, I am beginning to pursue the ease of carrying out of the simplification and the product of other companies of a product function, and cooperation by discerning reexamination of the function of each company's in-house product, and a true customer demand. However, in the state where the present product is too complicated and the present condition is not in sight even if it is going to simplify a product, it is difficult to know where to begin with.

I render a product visible, and systems engineering or activity like quality functional deployment (QFD) is adopted and promoted in many automobile OEM and suppliers, heavy industry, and the precision electrical industry for the production of quality by facilitation of the communication between technical domains besides - between their posts. There are cases where I begin from a component level, and there are also cases where I enter from the whole product. I consult the information built once in the case of the following model development, and it is mostly utilized in prospect attachment of improvement, influence grasp, a measure against a risk by a changed part, etc.

In this presentation, I would like to introduce the method of connecting the QFD information about each product in a company built in this way with problem solving or innovation by harnessing TRIZ.