The 13th Japan TRIZ Symposium 2017
Abstracts

June 23, 2017 (1st announcement)

Symposium Executive Committee

JIOO Takashi Ogata (IDEA Inc.)

(Tutorial)

Attraction of TRIZ that is effective for various problems in the development process

Takashi Ogata (Idea Inc.)

An easy-to-understand explanation on the problem analysis and idea generation methods of TRIZ, which are effective in various forms at the company's development process.

JIO2 Hiroshi Takagi (OBAYASHI CORPORATION)

(Special Lecture)

The Construction of Tokyo Skytree: A Challenge toward the World's Tallest

Hiroshi Takagi (OBAYASHI CORPORATION)

A talk about the innovative technologies and construction methods that solved numerous problems and led the unprecedented project to succeed.

JI03 Makoto Takahashi (SOKEN Research Institute)

(Special Lecture)

The Moment of Spark Ideas

Makoto Takahashi (SOKEN Research Institute)

We will find out the secret of the moment when, where and how the geniuses generate ideas.

J00 Shinsuke Kurosawa **(Japan TRIZ Society)**

(Participation Report)

TRIZfest-2017

held by the International TRIZ association (MATRIZ)

Shinsuke Kurosawa **(Japan TRIZ Society)**

The latest information on TRIZ in the world which are acquired in the international conference TRIZfest-2017 held in Krakow, Poland, from September 14th to 16th, just before the Japanese TRIZ Symposium, and sponsored by the International TRIZ Association, will be provided.

J01 Hajime Kasai (IDEA Inc.)

Idea Generation towards Cost Reduction and its Appraisal Method

- Creation of Cost Competitiveness by “Trimming” -

Hajime Kasai (IDEA Inc.)

An idea company develops a quality product at a low price early by project consulting which combined the systematic techniques, such as QFD and a Taguchi Method, with the standard for TRIZ, and it is supporting Japan's manufacturing industry so that it can perform making the No.1 product of the world. The author went to the client company as the practice staff, and has so far been in charge of consulting of practical problem solving of a little more than 160 affairs, or subject achievement. I classified all the subject of them into purpose-oriented as six kinds of solutions, and 9th TRIZ symposium in 2013 reported the practical use method of TRIZ to each. At the development spot, I take up this time about the approach method to a "cost cut" which is an important subject out of six kinds of the solution. Although TOC etc. are generally applied for VE for production control for a product system in a "cost cut", applying in any

case of TRIZ becomes effective in the stage of conceiving a concrete improvement proposal. In this report, I propose about the application method of "trimming" module of TRIZ at the time of targeting a product system, and the valuation method of each idea conceived from there.

J02 Shigeru Hisanaga (DENSO CORPORATION)

Convergence and Selection of Ideas in Practice

- Some Trials and Considerations -

Shigeru Hisanaga (DENSO CORPORATION)

In our company, I age 2003, begin introduction of TRIZ and have been promoting TRIZ practical use in the company till the present. There, the candidate in the company has gone focusing on the practice which promotes development with the application of TRIZ to actual business with an in-company promoter. If it is a company at all, naturally from the practice, a result is called for.

What is the result of TRIZ practical use? Even when it is considered as many case "if good idea is obtained" success and "many ideas are obtained", I am considered as a success. However, the original purpose which utilizes TRIZ is to solve a problem or to promote product development to the next stage. If it sees from the original purpose, I can consider "the idea was obtained" in the middle of a way.

I have planned to have tried methods various about "convergence and selection of an idea" as a process after idea generation from such an awareness of the issues, and to ask to achieve clearer results. However, when considering the number of the ideas used as a kill, without being harnessed, and when even if there is an idea, the still clearer development direction cannot be found out, about "convergence and selection of an idea", I cannot but think that the still right method is not acquired.

I arrange some trials which I have performed in the TRIZ practice activities for about ten years and which receive "how you converge an idea" and "which idea you to choose", and add that consideration which should exist how.

J03 Owaki Kouichi (Sony Semiconductor Manufacturing Corporation)

Akihiko Ikeda (Sony Semiconductor Solutions Corporation)

The TRIZ promotion example in the Sony semiconductor group

- Approach of the introductory unknown episode 2 and continuation of training -

- Up to an introductory unknown episode, training, and practice – - (2016 introduction)

Owaki Kouichi, Takeki Tanaka, Tsukazaki Hisanobu
(Sony Semiconductor Manufacturing Corporation)
Akihiko Ikeda (Sony Semiconductor Solutions Corporation)

In TRIZ symposium, our company (Sony Semiconductor Manufacturing, Inc.) makes Sony Semiconductor Solutions and a joint statement last year, I introduced each measure of both companies, and the episode related to mutual cooperation from the TRIZ introduction in the Sony semiconductor group to training and its practical use.

I think that I would like to mix an individual case with you, the parties concerned who actually promote activity for activity of the after that of Sony Semiconductor Manufacturing, Inc. (henceforth, SCK) which is a manufacturing-operations place, and to announce the approach of two points as follows to you this time.

1) The device of the approach which tells the charm of TRIZ
(Promotion which I make an auditor regard as "I would like to do")

2) The device of the continuous approach for fixing TRIZ
(Inclusion to a management cycle)

The contents are the examples which urged introduction to the manufacturing-operations place and resulted in adoption, while we actually repeat a try & error in a new measure every day. I am pleased if some are utilizable as a concrete measure mainly turned to the engineer of a manufacturing-operations place.

Although the direction that I will tackle promotion from now on, and introduction were carried out, I would like people which hit a wall and are taking pains over promotion to refer to it by all means.

And I am pleased if it leads to contributing to this announcement serving as

TRIZ introduction in each company, and reference of practical use, and building better society by expansion of the range of practical use.

J04 Takayoshi Ohtsu (National Institute of Technology, Numazu College)

Development of the Electric Power and the Cable for Communication using TRIZ

- Prevention of an Electric Discharge Noise and Dust Adhesion -

Takayoshi Ohtsu (National Institute of Technology, Numazu College)

A semiconductor product is used in various environments with arrival of ubiquitous times, such as a mobile phone, a smart phone, and a tablet terminal. Especially the destruction and malfunction of an electronic device by electrostatic discharge, such as electric discharge from the human body charged in several kilovolts with static electricity and electric discharge by connection with apparatus electrified by friction or electrostatic induction, are a serious problem. Furthermore, the demand of improvement in the reliability to electric power and the cables for communication, such as an advancement of medical equipment, robotization of nursing equipment, high-voltage-izing of an electric vehicle, automation, smart-grid-izing of electric power transmission, is increasing. In friction electrification, external electric discharge, and the power supply and telecommunication cable that were excellent in the measure against a voltage variation and dust adhesion by guidance electrification further, this research describes the result examined using TRIZ.

J05 Shigeru Kasuya （Proengineer institute）

The 40 Principles of illustrated up to 104 case

by using 85 kinds of sub principles

- Results of trying to the universality of the principles of the smart phone -

Shigeru Kasuya （Proengineer institute）

After discussing the essential issues of TRIZ at the 1st TRIZ Symposium, we have tried to create TRIZ tools that can be used for universities and small and medium enterprises. In that process, I was keenly aware that there are so many "engineers and students who are not good at abstraction thinking". Therefore, I thought that I could breakthrough by deepening the original Principles for engineers and students who recognized the current problem.

I tried to organize it into a tool by replacing the main concrete measures as follows.

(1) To be able to unconsciously abstract (enlarge) / realize (reduce), make it possible to issue ideas from the following five perspectives. For example, the principle name of two languages, the meaning of principles, principles image diagram, sub principles all realistic illustration, application example of different field etc.

(2) Increase trigger information of ideas from unsatisfactory points of engineer satisfaction evaluation results. Specifically, we devised new 40 Principles based on the sub principle that respected 104 diagrams of 85 classics.

As a result of trying the tool with a seminar etc., it was evaluated as follows.

(1) Contents of "the 40 Principles - All Deputy Principles" will continue to be displayed at the top of Google Search. In addition, the search ranking of other tool articles is also displayed in higher order, and it is regarded as a synergistic effect.

(2) The overall satisfaction trend of the TRIZ seminar with nearly perfect specification made it possible to obtain satisfaction that had never been experienced. As proof data, I will introduce the voices of some major students.

J06 Toru Nakagawa (Osaka Gakuin University and the CrePS Institute)

'Liberty vs. Love': The Principal Contradiction of Human Culture

(2) The 'Liberty vs. Love' Contradiction and 'Ethics' at the Personal Level

Toru Nakagawa (Osaka Gakuin University and the CrePS Institute, Japan)

This is the second report of applying the TRIZ/CrePS Methodology to a big social issue. In my first report, I have found a fundamental contradiction existing between 'Liberty' (the First Principle of Human Culture) and 'Love' (the Second Principle) and that the

contradiction has not been solved throughout the history of Human Culture; so I named it as 'the Principal Contradiction of Human Culture'. I was seeking for a possibility of moderating the contradiction in 'Ethics'.

In the present report, I have investigated the relationships among 'Liberty, Love, and Ethics' at the personal (and inter-personal) level, which forms the base level of the organizational hierarchy of human society. Inside the heart of humans, we have senses, feelings, and greed and desires as the base and often feel the conflicts between our 'Evil will' and our 'Conscience'. 'Ethics' should be the guiding principle for overcoming our 'Evil will' and for cultivating our 'Conscience' and our basic internal energy of life. Various forms of the 'Liberty vs. Love' contradiction appear and become serious when our understanding/behavior of 'Ethics' is poor. Thus, the 'Ethics', especially the concept of 'Fundamental Human Rights' having the principle of 'Essential Equality as Humans' at its core, is supposed to be the main clues to reduce, not to say resolve, the Principal Contradiction 'Liberty vs. Love'.

J07 Kimihiko Hasegawa

(Intellectual Property Creation Research Subcommittee, JTS)

Creation Example of a Service Robot's Evolution Tree (Part 1)

- History of the Evolution Consisting Mainly of

Patent, Design and Product Maps –

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

At the Intellectual Property Creation Research Subcommittee, when a report of research is carried out to the past by the theme "Proposal for a New Life Style of the Elderly People" (subtitle), we have the experience which examined the universal design. There, we explained "Paro", "AIBO", "i-PoT", etc., which are communication robots according to elderly people's assisted living.

We decided to create this time the "evolution tree" for a service robot (non-industrial robot) including the basis of a three-year plan as shown below, and a communication robot.

The 1st year, I analyze history until a service robot becomes the present form, and will create the map (a patent map, a design map, a goods map) which expressed the analysis result with the time series. I will create 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 a service robot's characteristic the 2nd year. The 3rd year, I will create the map (technical road map type evolution tree) which inserted in the new idea about the service robot which referred to the result of the 1 or 2nd year, and examined it into the series of a service robot's history.

J08 Yoshinori Takagi (myty)

From the child to the University of Tokyo student,

The University of Tokyo (business trip) lesson as which I described and 1000 or more sets of parents and children were familiar with on the 11th

- From experience and subtraction of an invention principle to an inconsistency definition -

Yoshinori Takagi (myty),
Naoto Nakamura (The Institution of Professional Engineers, Japan),
Tamotsu Murakami (University of Tokyo), Keisuke Kandai (University of Tokyo),
Makoto Takagi (myty)

I made TRIZ easier-to-use and opened two or more workshops for the purpose of those who master TRIZ increasing in number. The Japan Consulting Engineers Association Kanagawa branch, the University of Tokyo I told the usefulness of an invention principle and an inconsistency definition with experience using the teaching materials with which I cooperated with a design engineering laboratory, the University of Tokyo Tyoyuu meeting, etc., and even both children, and the University of Tokyo students and also adults cooperated with the invention principle symbol. I led, and described the lesson and the workshop over 11 days of 8 exhibition in 2016, and 1500 or more sets of parent and child, and 300 or more students and students experienced the invention principle and the inconsistency definition.

After experiencing an invention principle #1 division principle and #14 curved-surface principle through an original invention symbol toy, a memory song, etc., I learned about subtraction of an invention principle, and (physics) an inconsistency definition. By the same contents as the lesson which the University of Tokyo student also enjoyed, there were some children who understand an inconsistency definition at the age of nine. The lesson at a high school also obtained high evaluation.

There is also favor of the cooperator who states and exceeds 50 persons, and exhibition is again requested also 2017 from almost all exhibition. Since general public presentation is also carried out Sun., 6th in August especially about the scientific festival @ Kanagawa youth center, 8 (Tue.), 9(Wed.) TechnoEdge2017@ University of Tokyo Hongo campus, and Sun., 20th Atsugi child science museum, if those who got interested participate and experience, they are happy.

Moreover, I carried out in parallel in the University of Tokyo or the prefectural high school in Kanagawa also about the invention principle and the "patent book report" which patents sociably by inconsistency definition.

J09 Naoto Kashihara (TOYO TIRE & RUBBER CO., LTD.)

The in-company innovation promotion activities which utilized QFD-TRIZ (Sequel)

- Tire product development of "surprise", turning to base construction of "innovative" technical development power -

Naoto Kashihara (TOYO TIRE & RUBBER CO., LTD.)

TOYO TIRES is pursuing every day "development which reverses unique imagination, the technical capabilities of innovation, and common sense" by making into a catchphrase "whether for surprise to be in the tire" aiming at the product development which can provide a customer with impression. Moreover, I am beginning to move this year based on corporate philosophy newer than a degree and the midterm management plan 17, and importance is being increasingly attached to the environmental construction which carries out early realization of the innovation, and the improvement in a corporate value by the embodiment of an idea.

In tire technical development with much technical inconsistency, I introduced the contents of activity which aimed at "TRIZ which can be used practically" which I link with commercialization directly by applying the structure which carried out the original work in the last fiscal year in the process before TRIZ "a subject setup and causative analysis", and the back process "idea conclusion."

A degree introduces the increase-in-efficiency activities for making time to think expand this year, in order to devise and to use effectively the further limited resource for carrying out effective approach in the "causative analysis" of the process before TRIZ as the sequel.

J10 Motoharu Miki (OLYMPUS Corporation)

Promotion of Olympus's scientific approach including TRIZ

~ Training "Practical Expert" suited to the Workplace ~

Motoharu Miki, Kazuhiro Fujikawa, Hiroyuki Tsuchiya,
Kazuo Abe (OLYMPUS Corporation)

Since 2012, OLYMPUS has introduced and promoted 7 Solutions based on QFD, TRIZ and Taguchi Method. Solutions directly linked to engineer's "troubled" are easy to understand. As a result, the number of our support has increased and the cognition has spread.

As a next step, we try to advance further utilization expansion. Therefore, we think that it is necessary for engineers to self-utilize in order to compensate for our resource shortage.

We introduced the following measures to make activities more effective.

- Training "Practical Expert" suited to the Workplace.
- Activation of the workplace.
- Activity report to office manager.

J11 Takanori Suzuki (MIZUSHIMA PRESS KOGYO Co., Ltd.)

Reconstruction of the recognition in the existing products

by TRIZ practical use

Takanori Suzuki (MIZUSHIMA PRESS KOGYO Co., Ltd.)

Mizushima Press Kogyo Co., Ltd. is performing development of auto-parts including a "steering shaft" and a "door hinge", and manufacture focusing on the technology of plastic processing, such as press processing and swaging.

In recent years, in the car which continues evolving, various evolution is called for also in each part articles, such as shakiness reduction between the parts by the weight saving by the further low-fuel-consumption target, and noise reduction of power.

In our company which has manufactured the half more than century and auto-parts, there is no view of the craftsmanship to the existing product about changing often, bad, and a lot, and it did not result in new idea creation in the craftsmanship in recent years, but has carried out the method of making somehow by the conventional system.

Then, the appearance like IDEA, Inc. supports and I introduced into the existing product the systematic development technique which used TRIZ as the core. I was able to analyze the part function and problem of each, and was able to raise performance greatly by dropping the idea created by TRIZ, without raising change and part accuracy of part composition.

I became the cause to change a lot the view to the product which did not change a lot also for tens of years by feeling the process of the systematic development technique which used TRIZ as the core.

J12 Yuichi Kawano (Soyu Co., Ltd.)

Simple problem-solving examples in TRIZ practical use

Yuichi Kawano (Soyu Co., Ltd.)

Our company is incorporated company.　I am called Soyu. I was allowed to carry out proposed type technical cooperation for solving the design problem, the subject on production technology, etc. on the occasion of a visitor's development and a design case, and, finally have also accepted mass-production trust. I obtained the edge of the case of various type-of-industry industries, and have granted your kind consideration. It is having introduced TRIZ in order to build further "production technology reservation to embody" of "an early positive technical solution proposal" and

after that so that proposal service may match with a visitor's various needs, A positive proposal came made earlier and I was able to make the conventional strong point as our company further strengthen.

Here, I report on the partial example what kind of output to have presented, to the input which obtained the design subject from a visitor following last year. I will announce two examples as an example of a simple solution proposal this time.

J13 Takashi Ogata (Idea Inc.)

Future prediction combining TRIZ 9 screen method and TRIZ desire-type idea method

~ Application of function-based TRIZ desire-type idea method ~

Takashi Ogata (Idea Inc.)

In recent years, IT technology such as AI and IoT evolved and spread at a dramatic speed in many businesses, and many companies are difficult to predict the future system on the extension of conventional product development. Several companies are planning to think of a future system with a scientific approach in preparation for major innovation.

As a way to respond to such corporate needs, I have proposed the search for uses by "search logic tree" *.

In addition to this method, I have found that the idea method that combines the TRIZ 9 screen method and "TRIZ desire type idea method" ** is effective.

The TRIZ 9 screen method (system operator) is widely known as the future prediction method.

9 Screen method can give us many ideas.

However, the idea that we need is not a vague image idea, but an idea related to our own technology and strategy leading to the development of the next elemental technology.

For that purpose, it is effective to represent the strengths of our technology with "functions S+V+O" and create ideas by the desire-type TRIZ.

(*: TRIZ Symposium 2015 **: TRIZ Symposium 2013 by former Olympus Corporation Ogata presentation material)

J14 Hisataka Izawa (Sony Corp.)

The present business model of research of the general-purpose application method of an "evolution trend"

- "Parcel delivery service cargo" which I explore by an "evolution trend" –

Osamu Ikeda (NIKON CORP.), Hisataka Izawa (Sony Corp.),

Mamoru Ohashi (Hitachi Metals, Ltd.), Fumiko Kikuchi (Pioneer Corp.),

Yasuo Moriya (FUJITSU ADVANCED TECHNOLOGIES, LTD.),

Ikuo Yoshizawa (The SANNO Institute of Management)

Business and Management TRIZ Research Subcommittee (Japan TRIZ Society, NPO)

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

In 11th TRIZ symposium (2015) since the analysis tools (an inconsistency

matrix, an invention principle and an evolution trend, an evolution level, etc. of a management system) of the TRIZ style were about ready in old activity,I selected "the business model with a sufficient line" from all fields partly, and analyzed the success factor by the TRIZ style (reverse). And in 12th TRIZ symposium (2016), I 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, I focused on the specific tool and made the application method of the "evolution trend" of Darrell L. Mann proposal applicable to examination this time.

1. I 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. Paying attention to a specific business model, I make 1 of contents explanation, 2, and 3 clause applicable to examination.

J15 Koji Tsumagari (Education of a New Era Research SC., JTS)

Syllabus "Solving Job-Hunting Activities"

Kurosawa, Shinsuke, Toshimitsu Kataoka, Yoshihisa Konishi, Koji Tsumagari,

Yuji Mihara (Education of a New Era Research SC., Japan TRIZ Society, NPO)

The syllabus sub subcommittee was installed by the member as a sub subcommittee of a TRIZ association "education of new era" subcommittee in the five above-mentioned persons in the 2014 fiscal year, began activity with the target "which creates the syllabus of 15 easy-to-use tops in order to promote introduction of TRIZ to a lesson of a university", and has continued till today.

I carried out considering it as the syllabus I get a student to study with volition in the meantime based on the result of the trial lesson in 2015 to adding as another target. As for this, educational success or failure stand on recognition of not changing also although the natural situation of being influenced by the volition of the side which I study greatly far calls it the education of TRIZ, rather than the volition of the people to teach.

Based on this, I choose as a material the "job-hunting activities" assumed to be sensitive in the volition which I study for many students from the 2016 fiscal year,I will

begin making the syllabus characterized by having thinking technology mastered, applying the tool of TRIZ to the problems relevant to job-hunting activities, and one result will be obtained today. I report the result of the activity which went as an organization affiliated with the Japan TRIZ Society.

J16 Kiyohisa Nishiyama (Nagoya University)

An example of TRIZ practical use
in English paper writing instruction content development

Kiyohisa Nishiyama, Emanuel Leleito (Nagoya University)

The writer has performed English paper writing instruction of the student who majors in the engineering field as a teacher of the faculty of technology, Nagoya University, and an engineering graduate course international exchange room. I led such activity, and guided inner English paper writing of the subdivided special field of study how including the contents, or the student of the busy faculty of technology faced the problem that time of sufficient English study was not securable etc. Such a problem is recognition that it is unsolved in common also in the national faculty of technology. Then, the writer developed the animation contents which enable the student of an engineering system to learn about English paper writing, and mainly opened to the public towards in the university beginning in the 2017 fiscal year. In a plan and employment of contents, I am utilizing the view of TRIZ positively. In this announcement, I introduce as one of the examples of TRIZ practical use of development of the above-mentioned English paper writing instruction process.

J17 Tamotsu Murakami (The University of Tokyo)

Proposal of a Contradiction Matrix Systematization
Based on Physical Quantity Dimension Expression of Parameters

Tamotsu Murakami, Yota Takakura (The University of Tokyo)

The inconsistency matrix in TRIZ which classifies the problem which should be solved as inconsistency of the parameter of 39 is a very effective method also as a framework of knowledge management of problem solving. Expression based on the parameter of 39 at one of these, When two or more possibilities are shown in the interpretation and expression as inconsistency about the problem of the comprehensibility whether I can express appropriately all the problems that may appear including the future, and the same problem, they are an interpretation of the chronicler of knowledge and a search person, and an expressional difference, The problem of the search nature which cannot acquire the knowledge which should be acquirable may arise. Writers propose systematization of the inconsistency matrix which used dimension expression of the physical quantity of SI unit system instead of the parameter of 39 about expression of inconsistency of a physical phenomenon as a method of solving such a problem. In SI unit system, I am the combination of seven basic units of length [m], mass [kg], time [s], current [A], thermodynamic temperature [K], luminous intensity [cd], and an amount of substance [mol], and the comprehensibility which can express various physical quantity which may be treated including futures, such as dynamics, electromagnetism, and sound, is guaranteed. Moreover, a relation, like it has positive correlation that length [m] is large and that volume [m3] is large may be able to absorb systematically an interpretation of the chronicler of knowledge and a search person -- I can presume from the dimension -- and an expressional difference. By this announcement, I propose systematization of the inconsistency matrix by the above view, and report record of the problem-solving example mounted based on it, and search software.

J18 Teruyuki Kamimura

(Ideation Japan, Inc., and Willfort International Patent Firm)

Intellectual property management which promotes future value creation

Teruyuki Kamimura (Ideation Japan, Inc., and Willfort International Patent Firm)

In recent years, many Japanese companies have planned reform of intellectual property (I call it IP for short hereafter) management regardless of the size of a scale. The important market might shift to the background from domestic overseas, the opportunity obstructed by the barrier of IP of an overseas competition company might increase, and the situation where I cannot compete with competition in the old way may have increased. Moreover, best プクティス of IP management which the company in the U.S, which is IP management advanced nation practices is introduced, and an understanding has progressed about worth of IP and the concrete method of gaining it actually. Furthermore, since I am adapted for intensification and improvement in the speed of competition, from the way of a "casual" type that I apply for a patent depending on the result of development or a design, I might precede and the way of "forestallment" which creates and IP-izes a future value may be needed. Our company has been supporting practice of IP management of the future value creation type which suited this new situation from about one-year before to two or more minor venture businesses. Although it is a still unripe stage, I introduce the main point and result.

J19 Yasumitsu Tanaka (Tohoku University)

Necessity and importance of innovation creation education in the advanced education in humanities of a university

Introduction of Innovation emergence “I-TRIZ" for the improvement in comprehensive capability of Tohoku University

Yasumitsu Tanaka (Tohoku University), Teruyuki Kamimura (Ideation Japan)

The most important and required thing studied at a university and a graduate school is special capability. Specialty nature becomes so important that it progresses with a master and the second-half course (following doctoral course) of a doctoral course. And, in order to improve specialty nature and to do good research, it is important to have originality and "to discover problems by oneself and solve subjects for oneself". For the purpose, I create (1) creativity and an idea. (2) Acquisition of power and capability which catches essence is needed. When an example is taken in a social situation, or the industry and the technical situation in present Japan and the world, the young power of excellent college student and graduate student fully demonstrates the above-mentioned capability

to have excelled, together with the specialty nature, I contribute to Japan and the world, and also solve global environment problems and a social problem, It is indispensable to contribute to the world (Educational ESD: Education for Sustainable Development, SDGs: Sustainable Development Goals) which can maintain future. That is, what "excellent human resource with young university and graduate school level studies innovation creation and management power for out of a university and graduate school enrollment in school" is important. However, educational environment of Japan has the tendency delay to be in respect of this to some of European and American countries and organizations.

Tohoku University has recognized the importance and the necessity of advanced education in humanities for a graduate student, founded in the mechanism the Career Support Center which supports a doctoral course student and a post-doctoral researcher to a subject, and founded the "innovation emergence cram school" to the advanced innovation doctor people goods training unit in it. And I opened a course of the lecture series "scientific methodology for inventing an innovation" of the innovation creation which took in "Ideation-TRIZ" at the lecture completely first at the Japanese university from the 2016 fiscal year. Furthermore, I take in the view and technique of "I-TRIZ" to PBL practice (Project Based Learning), and am carrying out the advanced education in humanities and the comprehensive education of a doctoral course. I explain this outline.

J20 Kurosawa, Shinsuke (trizstudy.com)

Experience of Generating Open Task Problems

Kurosawa, Shinsuke (trizstudy.com)

TRIZ is the technology to consider. There is a place which can realize the characteristic as technology and the tips on a way to be used only after applies to an actual scene and actually uses like other technology. By the way, the problem which is actual as for us and encounters is various. Corresponding to this diversity, TRIZ has grown up to be a system with many tools. For this reason, in order to master the whole picture of the possibility as technology which TRIZ has, it is indispensable to manage many experiences which I consider with the application of TRIZ.

I have prepared the exercise corresponding to it whenever the leaders of TRIZ including Altshuller develop a new tool. However, the number of what it can be translated into Japanese in the exercise which the leader made, and a Japanese student can touch now is restricted. Moreover, many of translated things cannot necessarily be said to be the best teaching materials for the student of present age Japan. For this reason, in order to spread TRIZ in Japan, the TRIZ staffs of Japan, we, are considered that it is necessary to do development and accumulation of an exercise suitable for a climate of Japan oneself.

Mr. Anatoly Guin who gave the keynote lecture in this convention in 2014 is generally used from the former in the educational scene. "I am based on exact conditions, The notes 1 which have advocated changing to the exercise which asks for what I draw the only correct answer for" using the established solution, and educating using an open task problem "in quest of there being no regular answer and thinking using creation (imagination) power." On the other hand, forcing it what is fitted in and considered in a frame using the conventional problem closed so to speak also has the side of the opposite effect in study of TRIZ which sets cultivation of creative thinking as the main purpose.

They are the notes 2 which are doing the work which traces the reason which obtains a solution idea using a TRIZ tool to the created problem while a writer has development of the open task problem which Mr. Guin advocates tried from the above viewpoint and releasing about 50 affairs to until. I will borrow the place of Japanese TRIZ symposium and will introduce the experience.