



10 Years of TCIAE Development and Contribution as a Platform for Science and Technology Exchanges between Taiwan and Russia

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Vice President, International Academy of Engineering (IAE)

IAE 2019 Annual Meeting (4/19/2019, Moscow, Russia)

Content

Introduction, Founding History & Purposes

Major Contributions: Serving as a Platform for Taiwan-Russian S&T Exchanges

Elected IAE Academicians and Corresponding Members

Unexpected RAE & IAE Delegations from Russian

At the end of **November 2006**, the president of RAE **B.V. Gusev** first led two VPs to visit Taiwan (upon the recommendation from US professor), and met with the president of Runtex Group **Dr. Samuel Yin** to conduct a three-day interviews and studies.

Deeply impressed with the development of Taiwanese engineering technology, precise manufacturing capabilities and research and development strength, the president Gusev decided to establish the **Taiwan Chapter** of the International Academy of Engineering (IAE).

Academic Links of TCIAE

- Russian Academy of Engineering (RAE)
- International Academy of Engineering (IAE)
(Taiwan Chapter of IAE)
- Russian Academy of Science (RAS)
(FEB RAS; SB RAS; IPMech RAS etc.)
- Engineering Academies of CIS Countries
- Major Universities and Research Organizations

Organization of IAE

- The International Academy of Engineering (IAE) has about 1,300 academicians from 40 countries.
- President of RAE & IAE:
Dr. Boris V. Gusev
- The organization structure consists of **9 National Academies and Branches, 5 Chapters, and Branches and Representative Offices.**



Five Chapters, Branches & Representative Offices (5個分會、支會及代表處)

- Slovenian Chapter (國際工程院斯洛文尼亞分會)
- **Taiwan Chapter (俄羅斯國際工程院台灣分會)**
- Central-European Chapter (國際工程院中歐分會)
- Representative Office in Greece (國際工程院希臘代表處)
- Representative Office in the Republic of Belarus
(白俄羅斯共和國代表處)

Taiwan Chapter of IAE (TCIAE)

- The Taiwan Chapter (TCIAE) is a branch of the Russian International Academy of Engineering (IAE) in Moscow and was officially **approved by the General Assembly of IAE in 2008**. The founding president, Dr. Samuel Yin, initiated the application **and TAICE was established in 2009** by the approval of Taiwan's Ministry of the Interior as a non-profit corporate legal person organization.



First TCIAE Board Meeting



Founding Purpose

1. the promotion of the academic and scientific exchanges between Taiwan and Russia,
2. the development and integration of industrial and technological cooperation,
3. the promotion of industrial research and development,
4. the enhancement of the international integration of engineers and scholars.

TCIAE Participation in IAE General Meeting (6/30/2015)

ИВАНЬСКОЕ ОТДЕЛЕНИЕ МЕЖДУНАРОДНОЙ ИНЖЕНЕРНОЙ АКАДЕМИИ



2017 IAE General Meeting



Content

Introduction, Founding History & Purposes

**Major Contributions: Serving as a Platform
for Taiwan-Russian S&T Exchanges**

Elected IAE Academicians and
Corresponding Members

TCIAE - An Platform for S&T Exchanges

- In the past ten years, TCIAE has served as a major platform to assist academia、governmental and industrial circles with the role of **NGO** to promote the scientific and technological exchanges among Taiwan, Russia and IAE branches (**C.I.S. Countries**).
- Through close cooperation between the IAE and the Russian Academy of Engineering (RAE), the two sides have defined each other's advantages and complementary cooperative items through **mutual visits, joint seminars, cooperative researches, joint publications, and technology transfers.**

TCIAE Platform



Taiwan – Product Supply Chain End Service (Last Mile)

台灣-產品供應鍊末端服務
(最後一哩路)

- ◆ 整合及發展技術
- ◆ 產品銷售

Integration & Develop
Technology
Product Sales

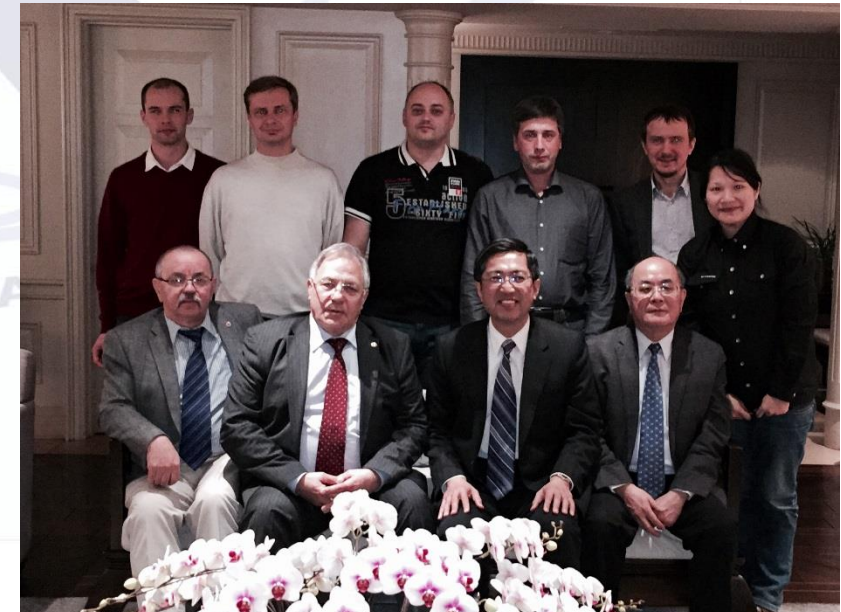
● 潛在產業別

- 生質能源 (廚餘 / 有機廢料生電)
- 風力發電
- 淨水設備
- 水力空化設備
- 醫藥、保健食品 (海洋生、植物提煉萃取)
- 海洋農業 (海底種植技術)
- 水霸、石油管線檢測技術
- 其他

TCIAE - An Platform for S&T Exchanges

■ Intensive mutual visits in past ten years:

The delegation of Taiwan visited Russia **18 times**, and the Russian delegation visited Taiwan more than **20 times**.
President Gusev visited Taiwan more than **20 times**.



MUTUAL ACADEMIC VISITS AND COOPERATIVE RESEARCH PARTNERS 歷年學術機構合作互訪一覽表

Taiwan Universities

台灣大專院校

台灣大學 (NTU)
台灣科技大學 (NTUST)
清華大學 (NTHU)
交通大學 (NCTU)
台北科技大學 (NTUT)
成功大學 (NCKU)
嘉義大學 (NCYU)
中山大學 (NCYSU)

Taiwan R&D Institutes

台灣科研中心

中研院
(Academia Sinica)
國家實驗研究院
(NARLABS)
國家地震中心 (NCREE)
國家太空中心 (NSPO)
儀科中心 (ITRC)
海洋中心 (TORI)
國家高速網路中心
(NCHC)

Russian Universities

俄羅斯大專院校

莫斯科國立大學 (MGU)
國立鮑曼理工大學
(BMSTU)
聖彼得堡國立大學
(SPSU)
聖彼得堡理工大學
聖彼得堡工業設技大學
莫斯科國立土木大學
莫斯科航空技術學院
門捷列夫化工大學
沃羅涅日國立建築土木
大學

Russian Institutes

雙邊計畫協議單位

俄羅斯科學院西伯利亞
分院 (SB RAS)
俄羅斯科學院遠東分院
(FEB RAS)
俄羅斯基礎研究基金
會 (RFBR)
俄羅斯科學院布德克爾
(Budker)核物理研究所
應用力學研究所(IPMech)
航空物理研究中心
俄羅斯輻射科技協會
俄羅斯科學院(RAS)

CIS Institutes

獨立國協機構

哈薩克工程院 (NEAK)
亞美尼亞工程院 (EAA)
亞美尼亞國立理工大學
烏克蘭工程院 (EAU)

Promote Cooperative Research & Industrialization

Both sides are promoting the research and development of industrial cooperation, including

- 1, Optoelectronic technology,
- 2, Environmental Sustainability,
- 3, Advanced Civil & Seismic Engineering,
- 4, Advanced Mechanical Engineering,
- 5, Materials, Physics & Chemical

Russian and Taiwan scientists published more than 30 articles on the topics listed above in Russian and Taiwan scientific journals.

Promote Cooperative Research & Industrialization

Photonics Tech.
光電科技(Y.C. Huang, NTHU)

非線性光學晶體

X-光檢測

高能微波

波動光學接收器
-地震、海嘯的
聲波監控預報方法

Environmental Sustainability
環境永續(J.J. Su, J.C. Chern, NTU)

鋰電池材料及技術人員的合作

有機廢棄物處理再生甲烷裝置
(超臨界水氧化技術)

封閉式先進渦流技術風力發電裝置

表面改質與節能的現代油料添加劑，提升機械零組件運行壽命

Civil & Seismic Engrg. 土木 & 防震工程(K.C. Chang, J.C. Chern, H.P. Tseng, NTU)

營建預鑄工法的推廣

地震波分析與震波屏障技術、隔震元件

地震活動的早期預警研究-空氣懸浮微塵法

Advanced ME 機械工程領域 (S.J. Huang, NTUST)

水動力空化器的開發，研磨礦物添加劑，以取得懸浮液以及乳化液。

機器人與自動化控制的合作

先進特殊合金的旋轉鑄造

Materials, Physics, Chemical 材料、物理、化學(K.C.Chang, C.R.Chang, NTU)

複合性聚氨酯-修復混凝土的成份，液壓及隔震的系列產品

水泥混凝土結構奈米化

車輛軌道輪子及電纜線磨耗的測量技術

立體化學元素週期表的圓錐螺型理論

Model: Photonics Technology

Coordinator: Prof. Yen-Chieh Huang
(Chairman, Institute of Photonics Technologies, NTHU)

- Russian-Taiwanese Scientific and Technological Forum (7/31-8/5, 2017, Moscow)
- Taiwan-Russia Joint Technology Transfer Workshop (11/22/2017, Taipei)
- TCIAE Industrial Technical Delegations to Russian (5/18/2018, Moscow)
- Prof. Y.C. Huang's visit to 4 Russian Universities and 2 Institutes (RAS) (late June to early July, 4 Russian cities)
- Continuous efforts to Promote Russian Technologies and business opportunities in "ITRI Taiwan Industrial Consortium to Optical Components" on 10/26/2018. and in "Taiwan Optics/Optronics Manufacturers' Association" on 11/28/2018.
- TOOMA Group Trips to Russian in Spring 2019.

Photonics Technology 光電科技

High resistivity KPT crystal; Large X-ray inspection systems; High power equipment etc.

1. RKTP是重要的**高功率**雷射元件 (Q-switch, 波長轉換)
 - Potential partners: 中科院、雷射加工機廠商
2. 俄羅斯有完善的**X光影像**設備及技術
 - 台灣 IC/PCB/車廠/醫院 3-D影像檢測應該有需求
 - 在全球反恐的氣氛裡應該是商機無限
3. **高能設備** (重電 up to 1 MV、輻射 up to GW、加速器) 一向是俄羅斯獨步全球的專長，經營管理是台灣的亮點，政府及國營單位積極投入台俄合作將有機會建立互補互助的雙贏

關鍵技術：

x光產生 (電子加速器、微波)、重電設備、x光影像擷取、影像分析 (軟體)

相關商機：

半導體製程設備、高能科研設備、國防設備

Photonics Technology (Nonlinear Optical Crystal)

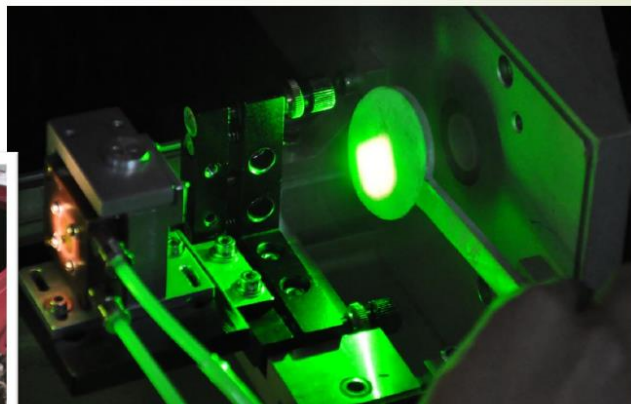
光電科技-非線性光學晶體

High Resistivity KTP Crystal

每一個綠光雷射(1-3 mW)比裡頭都有一個
KTP晶體，但是無在高功率下工作



工作在高功率下的 KTP是俄國技術長處：高功率率光倍頻雷射



Periodically poled RKTP crystals 準相位匹配晶體 - 高效率雷射波常轉換器

→ 高功率中紅外光雷射 → 科研、醫療、環保、國防

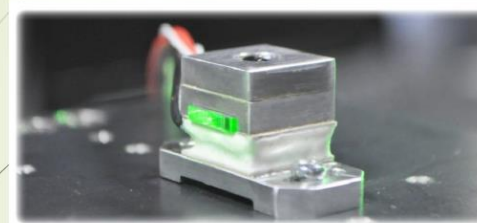
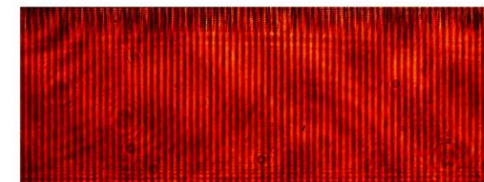
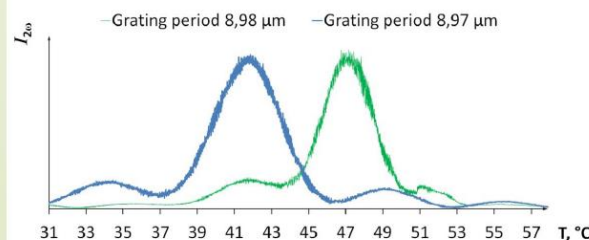


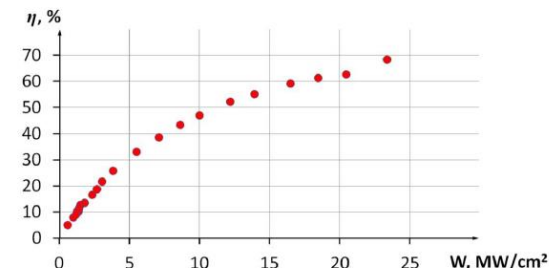
Photo shadow pattern periodically poled domain structure in RKTP crystal



The temperature dependence of the second harmonic generation in PPRKTP crystal



The dependence of the efficiency of second-harmonic generation from the power density of the pump radiation



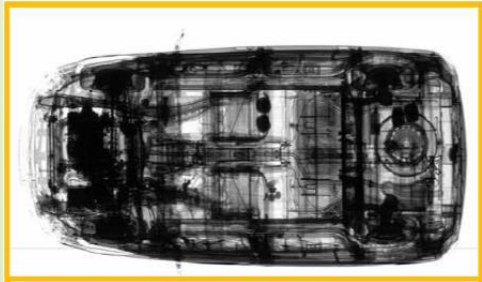
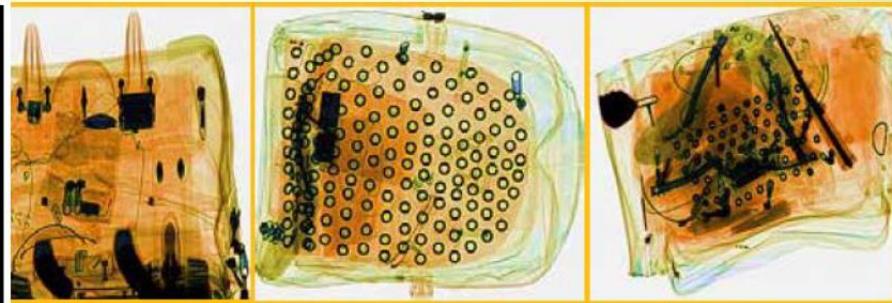
Photonics Technology (X ray Detection, High Energy Microwave Application)

光電科技-X-光檢測、高能微波

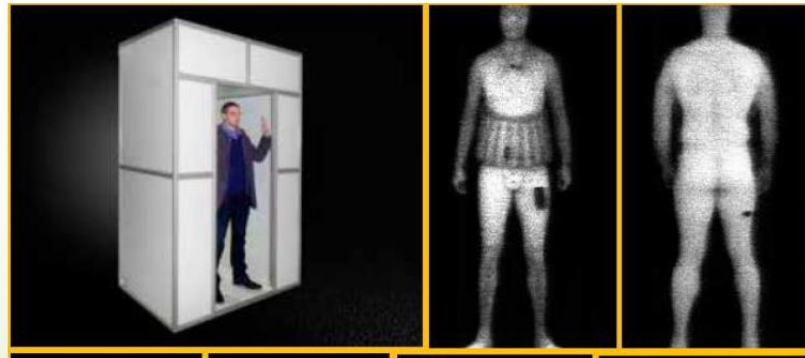
x-光影像檢測

Large X-ray Inspecting System

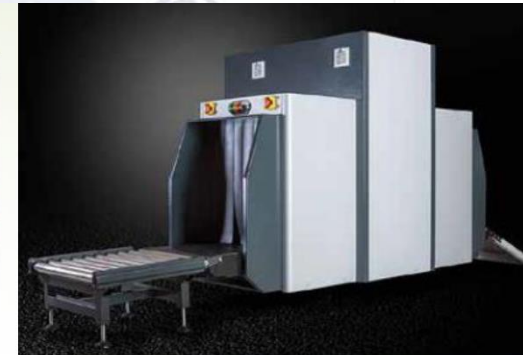
Contact: Alexander Okunev alexok12@gmail.com, MBA/MIT, BS/Electrical Engineering
Special assistant to the president of IAE
Further information: <http://inwdt.com/>



extracted from INWARD catalog



俄方已經開發出成熟的軟硬體



extracted from INWARD catalog



Environmental Sustainability (Lithium Battery)

環境永續領域 - 鋰電池

- According to GTM Research report, global Lithium battery energy storage system will increase 55% annually in 5 years. The system storage will increase from 2GWh(百萬度) in 2017 to 18GWh in 2022.

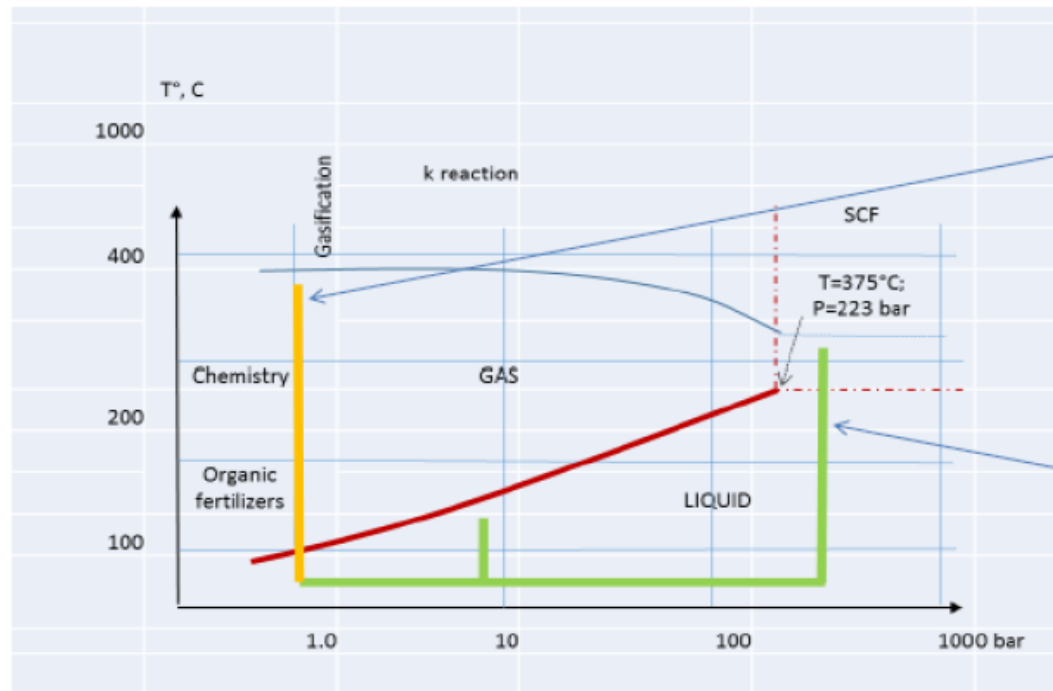
TCIAE Assisted Taiwan's Lithium battery company in seeking cooperation in developing solid-state battery materials and technicians in Russia



Environmental Sustainability- Supercritical Water Oxidation Technology (SCWO)

環境永續領域-有機廢棄物處理再生甲烷裝置（超臨界水氧化技術）

THERMAL CYCLE DIAGRAMS



Current SCWO Methods

(yellow line)

Proposed Method

(green line)

Environmental Sustainability-Organic Waste Recycling Plant Technology (Biomass, SCWO Machine)

環境永續領域-有機廢棄物處理再生甲烷裝置（超臨界水氧化技術）



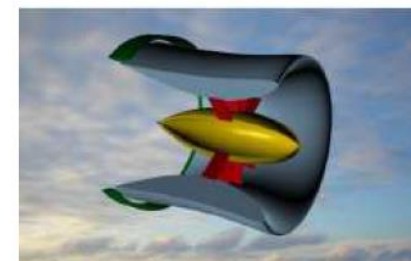
With Professor FU, Chao-Ming, Dr. Sci.
Director, Taipei-Moscow Economic and Cultural
Coordination Commission

Environmental Sustainability-New Generation of Wind Power Plants Technology (Biomass, SCWO Machine)

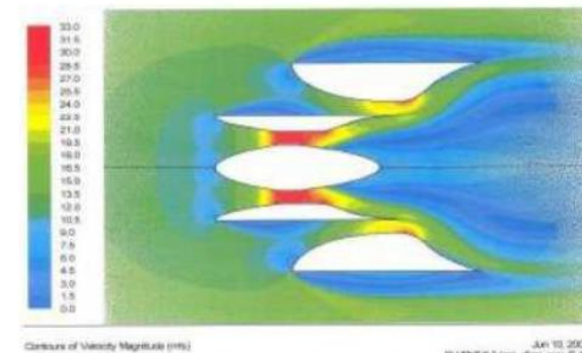
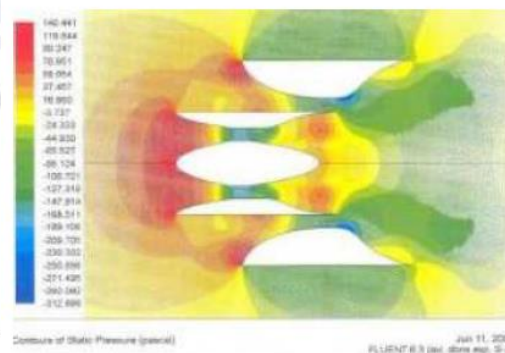
環境永續領域 - 封閉式先進渦流技術風力發電裝置

Physical Diagrams

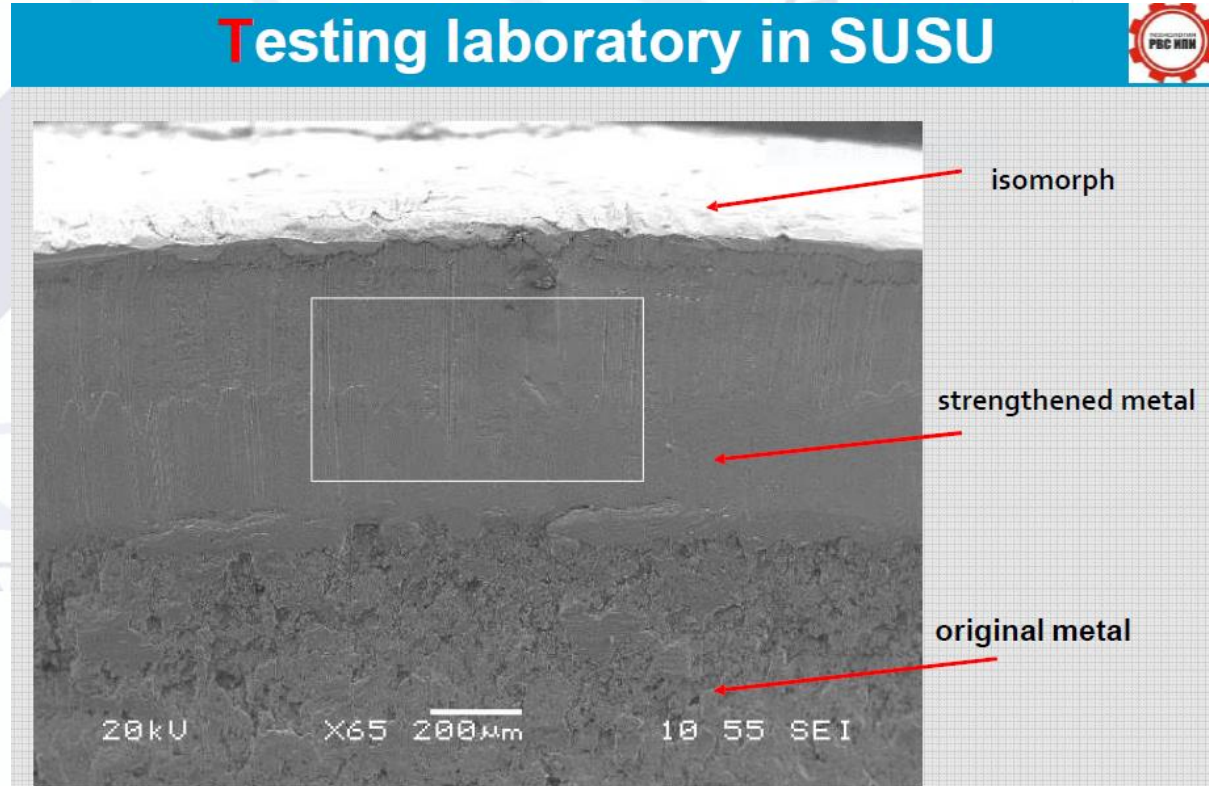
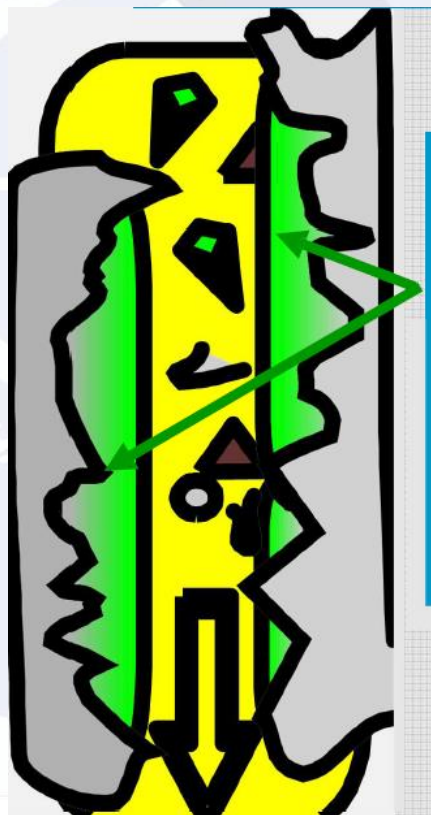
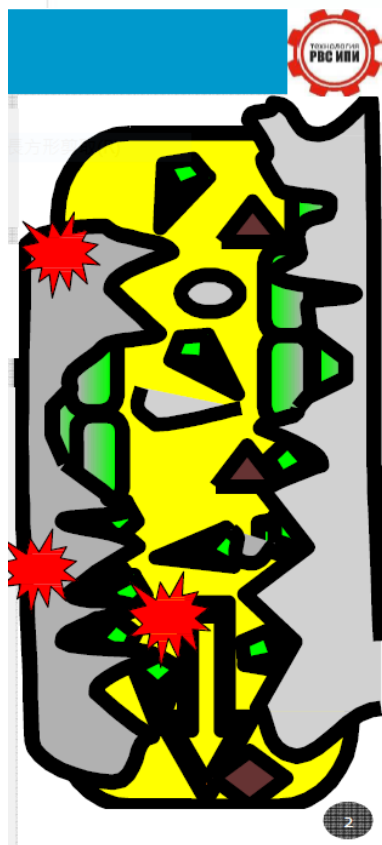
Comparative Visualization of Modules



Static temperature and speed airflow and in the turbine area



Environmental Sustainability-Modern Oil Additive for Surface Modification and Energy Saving (Remote Vehicle Start - Intelligent Surface Isomorph) 環境永續領域 - 表面改質與節能的現代油料添加劑，提升機械零組件運行壽命



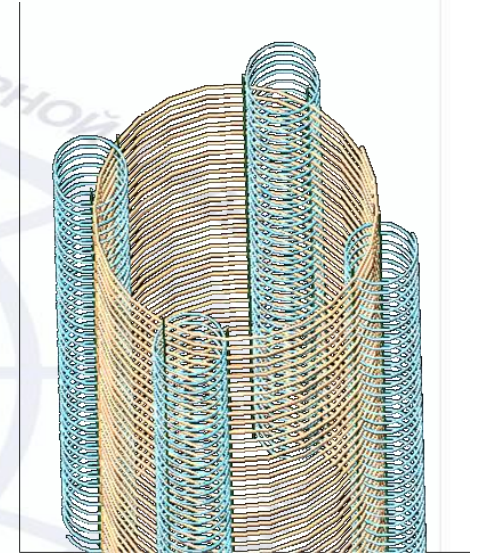
The microstructure of the steel end plate, processed by RVS-ISI

Advanced Civil and Seismic Engineering – Precast System Technologies

先進土木及防震工程 - 預鑄工法

Dr. Yin's Major Contribution to Engineering Technology

- Implement of **Reinforcement Automation** for RC Structures:
 - # reduces labor costs by more than **45%**,
 - # reduces amounts of steel shear reinforcement by up to **30 or 50%**,
 - # shortens construction time by up to **50%**
- Develop **Taiwan Precast Technologies**, reduce construction time of High-tech Factory by up to **50%**.
- Develop World Leading **Life-cycle BIM System**



Life-cycle BIM Development

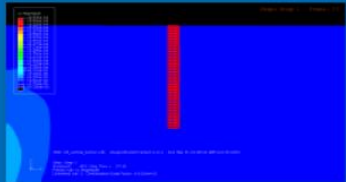


Advanced Civil and Seismic Engineering – Seismic Waves and Seismic Barriers

先進土木及防震工程 - 地震波分析與震波屏障技術

震波屏障技術基本概念

Three types of seismic barriers



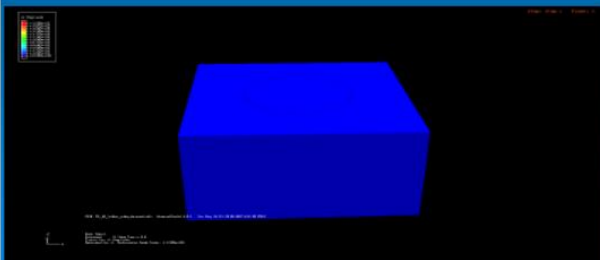
Vertical barrier

/ click on a picture to animate /



Horizontal barrier

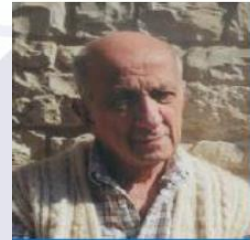
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The pile field surrounding the protected region

/ click on a picture to animate /

震波屏障技術應用案例



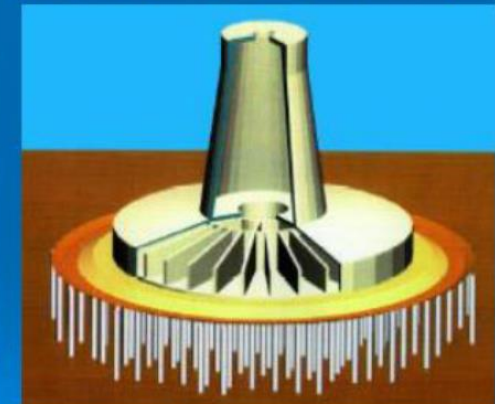
Rion–Antirion (Ρίου-Αντίρριου) bridge

The exterior piles that do not support grillages serve for dissipation of the seismic wave energy
(design and dynamic analysis by Alain Pecker)

The multiple-span cable-stayed bridge over
Gulf of Corinth, Greece
created in 1999-2004 by architect Berdj Mikaelian



Seismic design and analysis
Alain Pecker



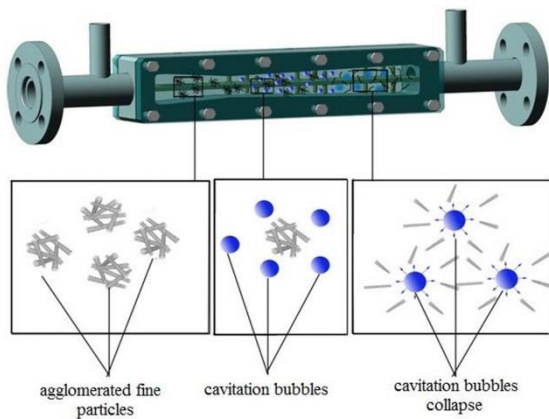
The bridge successively passed the earthquake of M_w 6.5 in June 2008

Advanced Mechanical Engineering – Hydrodynamic Machine for Grinding of Mineral Powder

機械工程領域 - 水動力空化器的開發，研磨礦物添加劑

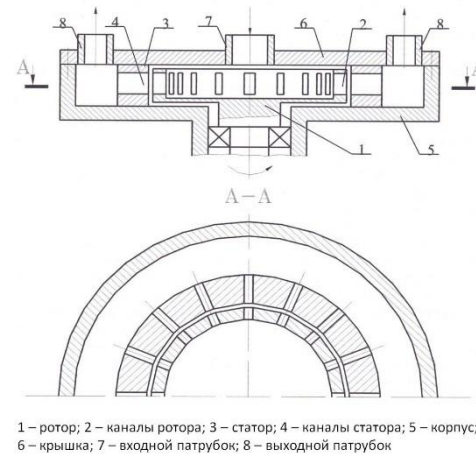
流動式空化器

ИЗМЕЛЬЧЕНИЕ И АКТИВАЦИЯ МАТЕРИАЛОВ
Общий вид пассивного гидродинамического диспергатора



13

ИЗМЕЛЬЧЕНИЕ И АКТИВАЦИЯ МАТЕРИАЛОВ
Схема роторного импульсного аппарата



12

ИЗМЕЛЬЧЕНИЕ И АКТИВАЦИЯ МАТЕРИАЛОВ
Проточный кавитатор

а) поле вихревых потоков



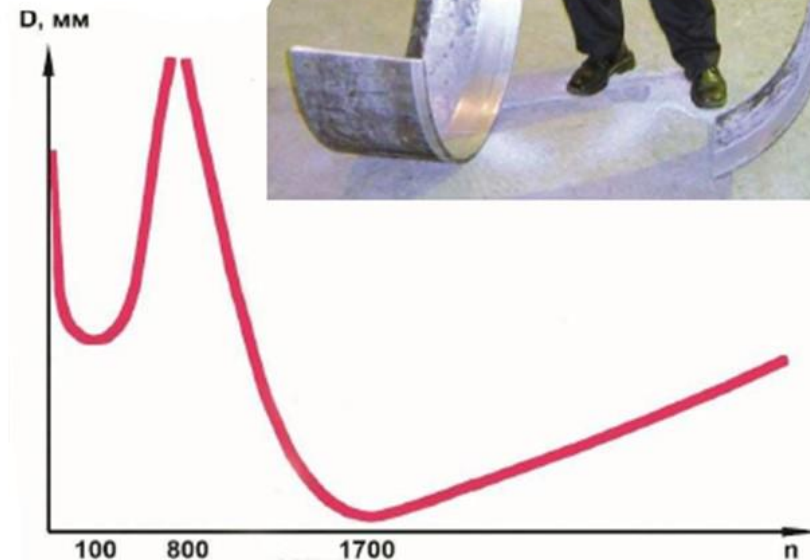
б) картина перемешивания



14

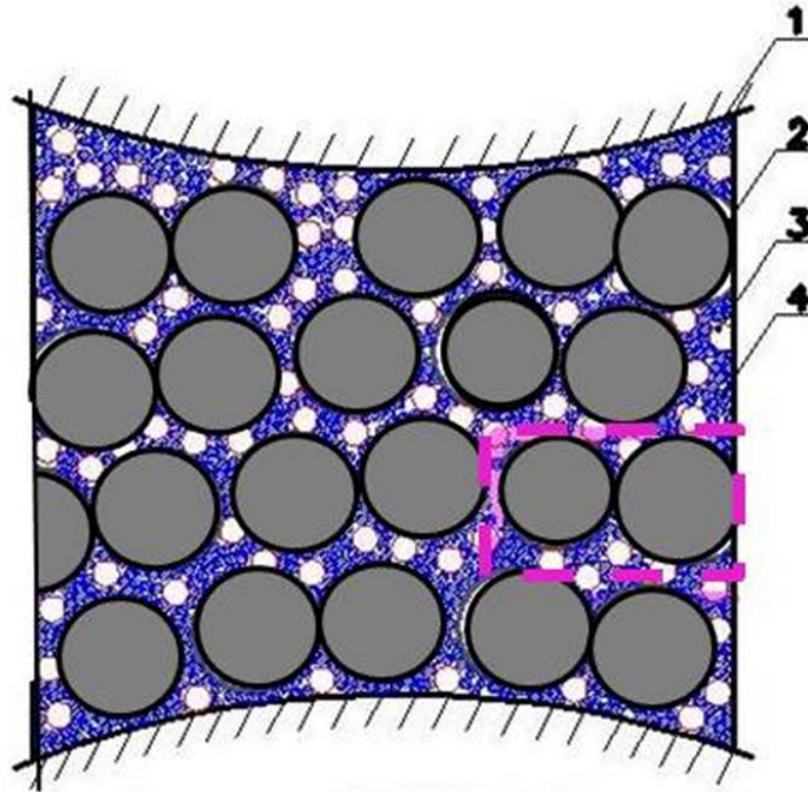
Advanced Mechanical Engineering – Advanced Centrifugal Casting for Special Alloy

機械工程領域 -
先進特殊合金的旋轉鑄造



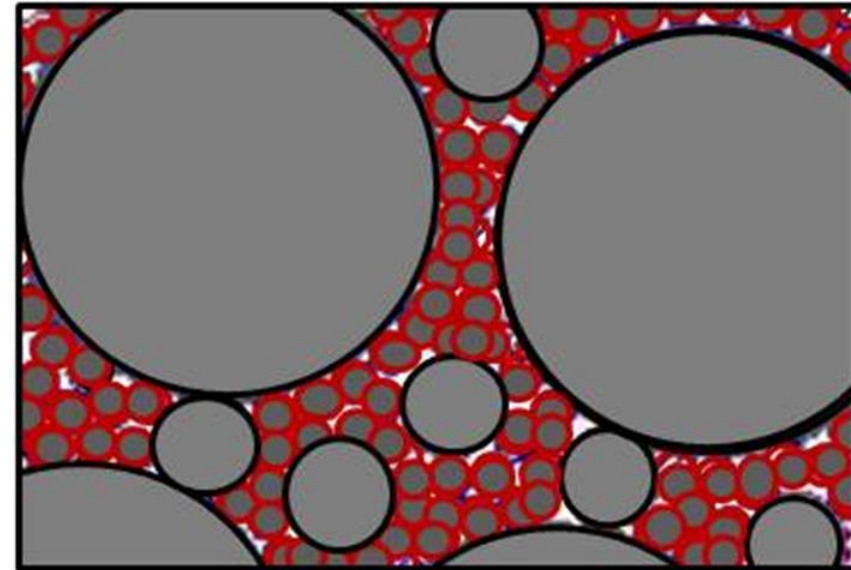
Materials, Physics & Chemical (Nano-powder Admixtures for Concrete) 材料、物理、化學領域

a) 奈米結構形成的片段



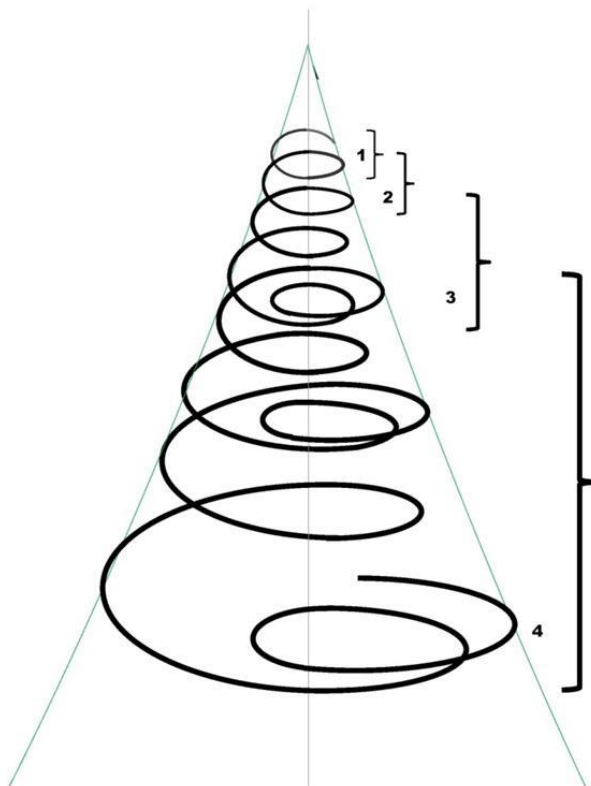
- 1- 砂的微粒;
- 2- 水泥微粒;
- 3- 細磨的礦渣微粒;
- 4- 礦渣的細磨奈米微粒

b) 水泥微粒間隙的奈米結構片段 a

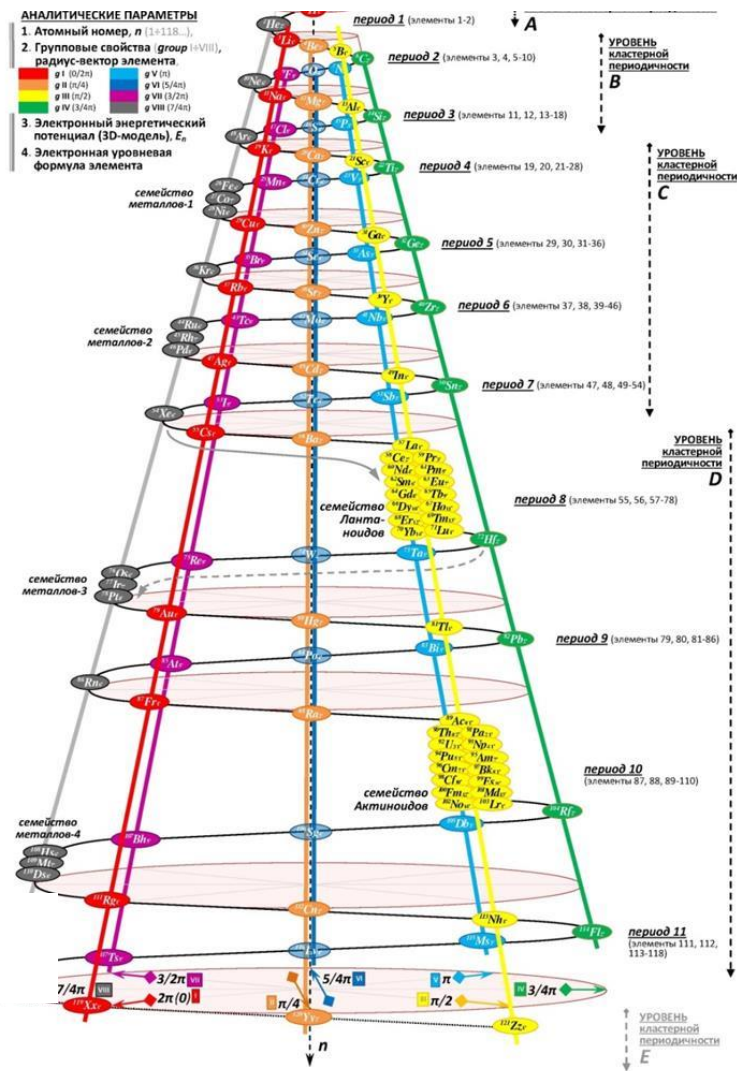


Materials, Physics & Chemical – Three-Dimensional Element Periodic Table

材料、物理、化學領域 - 立體化學元素週期表的圓錐螺型理論



1, 2, 3, 4 – 組群的週期性



Joint Forums and Workshops 雙邊論壇、研討會

| Name 研討會名稱 | Year | Brief Digest 摘要 |
|--|-------------|--|
| Taiwan-Russian Civil Engineering Workshop 台俄雙邊土木領域研討會 | 2012 | Theme: “ Application of Innovative Techniques in Civil-Structural Seismic Engineering ”, Organizer: NCREE, Co-Organizer: TCIAE, Guests: SB RAS delegates |
| 2013 Science-Technology Industrial National Activities 科技工業-2013 國際活動 | 2013 | High Tech Expo and Convention , Organizer: SB Government, SB RAS Guests: TCIAE Delegates |
| All Russian International Conference on Concrete and Reinforced Concrete 全俄羅斯暨國際混凝土研討會 | 2014 | Organizer: Monomax Congress LLC, Russia; Venue: RAS, Moscow Guests: TCIAE Delegates, Presenting 12 research papers. |
| Taiwan-Russian Workshop on “The use of Taiwan's photon source and the prospective application of Russian radiation technology” 台俄雙邊研討會(台灣光子源之運用及俄羅斯輻射科技前瞻應用) | 2015 | Organizer: 俄羅斯布德克爾(Budker)核物理研究所、航空物理研究中心、輻射科技協會(Russian) 國家同步輻射中心(Taiwan) TCIAE (Assisting role in receiving and visit arrangements) |
| Taiwan-Russian Workshop on Sustainable Development 台俄雙邊研討會 (永續發展主題) | 2016 | Organizer: National Central University Guests: Deputy President Fermin leads 12 senior executives and scholars from SB RAS. TCIAE (Assisting role in receiving and visit arrangements) |

Joint Forums and Workshops 雙邊論壇、研討會

| Title of Activities 研討會名稱 | YEAR | Brief Digest 摘要 |
|--|-------------|--|
| Russian-Taiwan Workshop on Building Earthquake Resistance 台俄雙邊研討會(建築、耐震主題) | 2016 | Organizer: RAE, Russian Building Research Center, NCREE(Taiwan) Guests: Delegates from NCREE, National Taiwan University and NTUST. Venue Cities: Moscow and St Petersburg。 |
| 5th Russian-Taiwan S&T Forum (Moscow) | 2017 | Organizer: RAE, IAE and TCIAE Invited Guests: Professors & Experts from NTU, NTHU, NTUST etc. |
| Taiwan-Russia Joint Technology Transfer Workshop (Taiwan) 台俄技術說明會 | 2017 | Organizer: TCIAE and IEA Guests: President Gusev and other five delegates from Russia; 28 local participants from Industrial . Government, and Academia sections for technology transfer. |
| Joint IPMech - NTU Workshop (Moscow) | 2018 | Theme: “Seismicity, Seismic Protection, and Related Problems”, Organizer: NCREE, Co-Organizer: TCIAE, IPMech |

***Six IAE-RAE-TCIAE forums were held every one or two years since 2009.**

5th Russian-Taiwan S&T Forum (2017, Moscow)



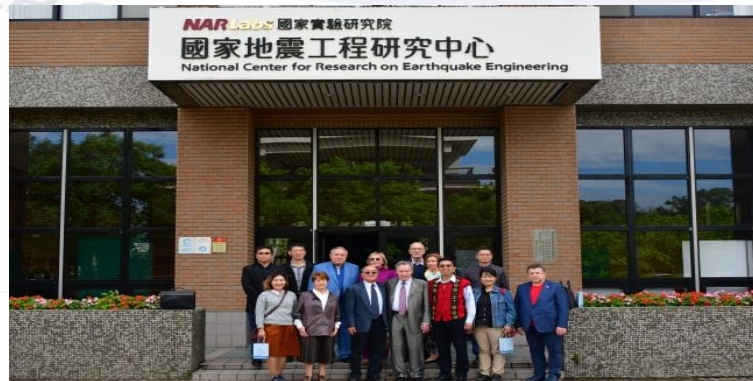
Taiwan-Russia Joint Technology Transfer Workshop (2017, Taiwan)



IAE Visits to Taiwan, 2017

Visiting Organizations :

- 科技部 (MOST)
- 台灣大學 (NTU)
- 台灣世曦工程公司 (CECI)
- 國家地震中心 (NCREE)
- 嘉義大學 (NCYU)
- 台灣混凝土學會 2017 研討會
- 成功大學 (NCKU)



Promote Russian-Taiwan Industrial Cooperation in Progress 促進台俄產業合作

Support TMECCC technology group Russia Entrepreneurship Exhibition(Skolkovo Startup Village) in 2015 and 2016

分別在2015及2016年支持並協助莫斯科代表處科技組俄羅斯創業展

Sustainability-Organic Waste Recycling Plant Technology (Biomass, SCWO Machine)

協助俄羅斯開發之有機廢棄物能源設備(將有機污泥、廚餘等轉化成可燃氣體-甲烷)與台灣產、學相關機構接洽，尋求台俄雙邊技術合作並在台灣進行工業機生產的可能性。評估：在處理有機廢棄物，尤其有機污泥成效已獲證實可生產甲烷屬可發展的綠能之一，將廢棄物變黃金。

Energy Battery (Lithium Battery)能源電池：協助台灣鋰電池公司尋求俄羅斯在開發固態電池材料及技術人員的合作

High resistivity KPT crystal; Large X-ray inspection systems; High power equipment etc.

光電科技

Content

Introduction, Founding History & Purposes

Major Contributions: Serving as a Platform
for Taiwan-Russian S&T Exchanges

**Elected IAE Academicians and
Corresponding Members**

Nomination & Selection of Academicians

- Recommendation Quota assigned by IAE (Annual or Biennial)
- Selection Process by **Academician Selection Committee of TCIAE**
- Candidates recommended to IAE through the approval of the TCIAE Board Meeting
- Process in Committee of IAE
- Election by Voting in IAE General Academician Meeting

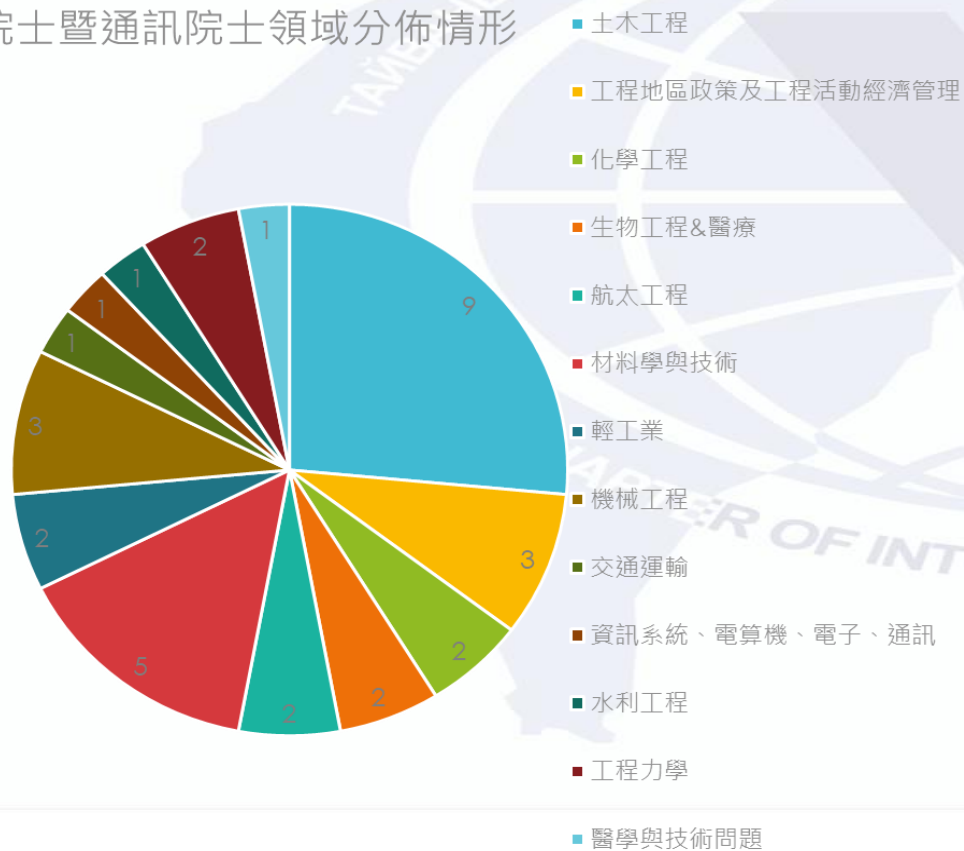
*** Please visit TCIAE web for the details.**

Elected IAE Academician and Corresponding Members

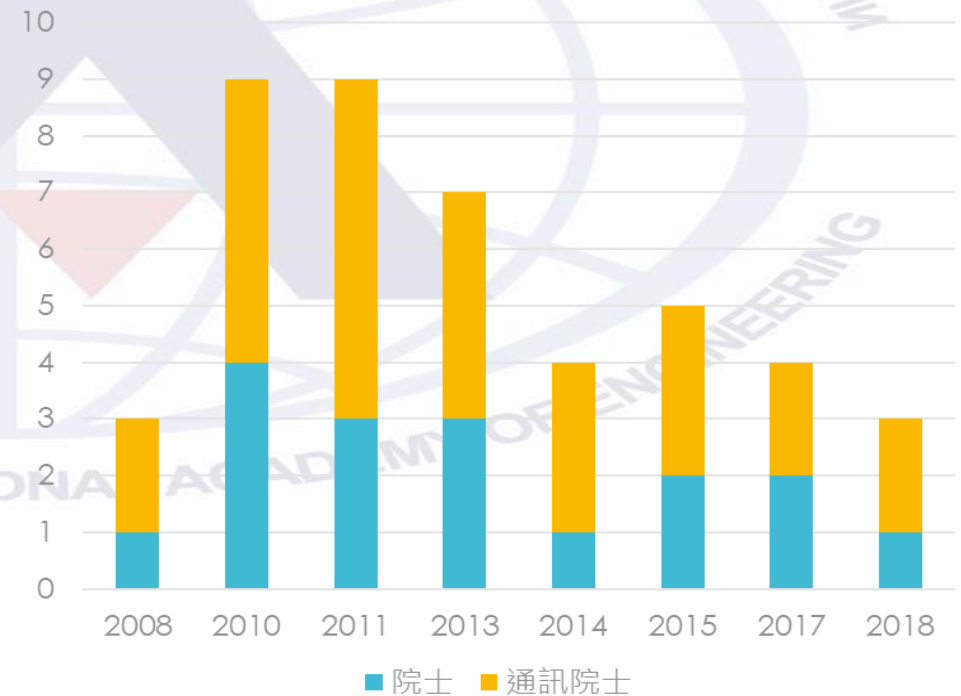
Professional Fields (Civil, ME, ChE, EE, BioE etc)

Elected Members (17, 17) (2008-2018)

院士暨通訊院士領域分佈情形



歷年當選人數一覽表



IAE Academician Meeting in Taiwan, 2018

Presidents & New Academicians

Group Photo



IAE Academician Meeting in Taiwan, 2018



**Dr. Din-Ping Tsai
(Full member)**



**Dr. Gwo-Bin Lee
(Corresponding members)**



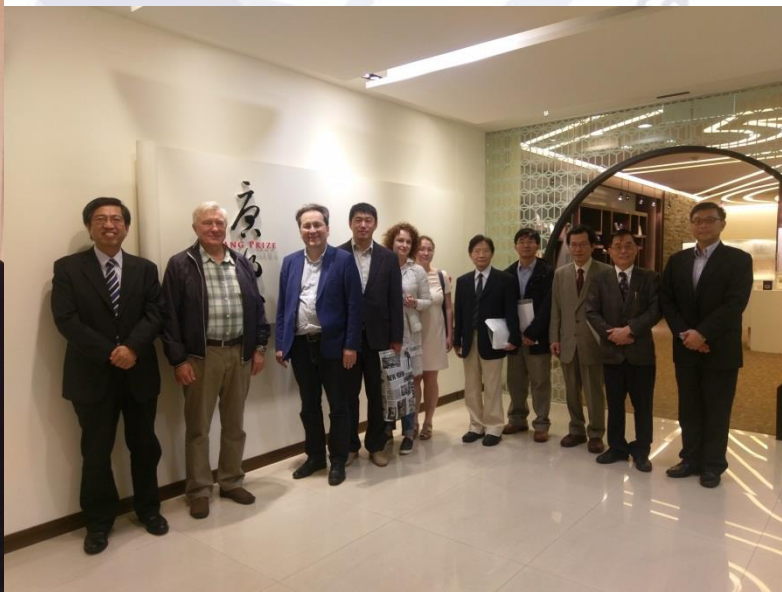
**Dr. Gwo-Fong Lin
(Corresponding members)**

Promotion of Tang Prize Award by IAE

**Tang Prize Lecture in
2018 RAE & IAE Joint
General Academician
Meeting**



**Keynote Lecture
in 2015 IAE
General Meeting**

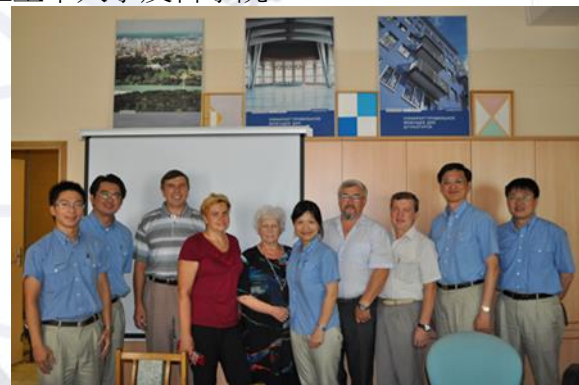


TCIAE Visits to Russian

IAE 2011 Annual Meeting (10/20~10/24)



2010.9.13~9.18 訪問莫斯科國立土木大學及科學院



2010.9.13~9.18 台灣學界及潤泰水泥代表團訪問俄羅斯門捷列夫化工大學

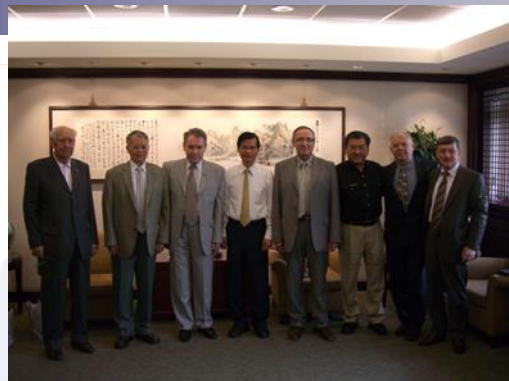


2011.6.2~6.9 台大&分會代表團訪俄照片



2012.7.2~7.6 訪問科學院西伯利亞分院研究所

RAE & IAE Visits to Taiwan



2009.6.24 俄羅斯代表團拜訪中研院



2011.1.17~21 俄羅斯水泥專家訪台



2013.5.3 哈薩克代表團訪問公共工程委員會



2010.12.10 訪問台灣科技大學



(左1至左4) (世曦) 羅懷慶經理、陳福勝總工程師、堵一強副總經理、李建中董事長
(右1至右4) (貴賓) 王瑞祺協理、曾惠斌教授、黃怡瑛秘書、古塞夫院長

2015.9.14~9.18 俄羅斯及哈薩克代表團訪台



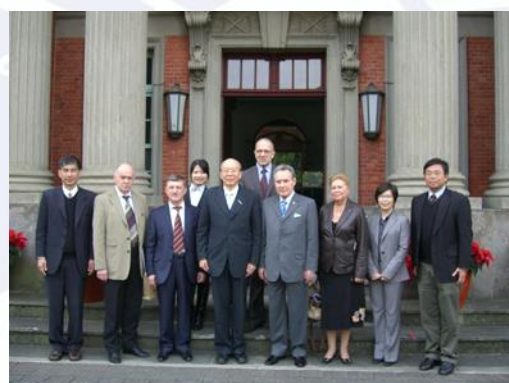
2014.12.26 SB RAS Fomin 副院長拜訪地震中心



2014.12.26 SB RAS Fomin 副院長拜訪地震中心



2007. 12. 08 俄羅斯代表團拜訪立法院



2010.12.6~12 俄羅斯代表團拜訪台灣大學



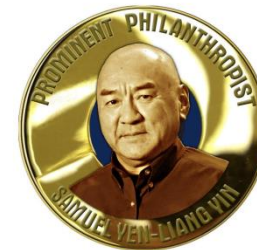
2014. 9. 19 頒發院士證書合照

The Glory of TCIAE

■ **Dr. Samuel Yin** was elected as the **First Vice President** of the **IAE** and was awarded the **8th Engineering Glory Medal of the RAE** in 2006.



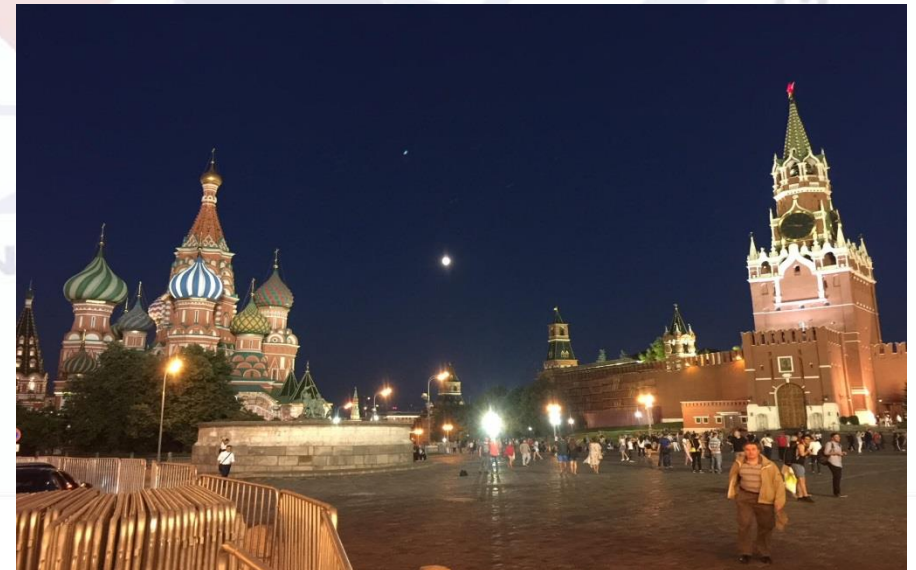
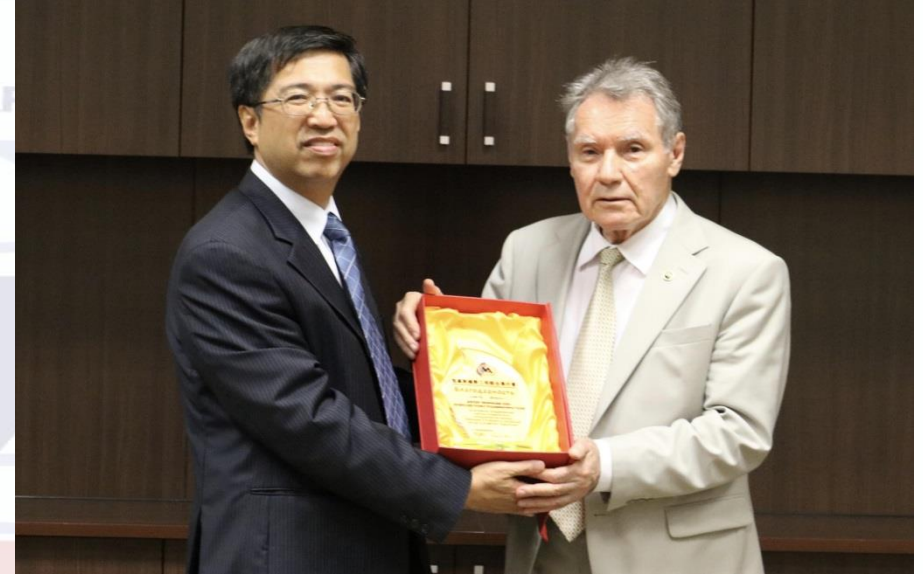
Орден
"Инженерная Слава"



■ **Samuel Yin Medal** (2018, new medal established by RAE & IAE, **Tang Prize**)

TCIAE 10th Anniversary Celebration Series

- Special sector "10th Anniversary of the establishment of TCIAE" on TCIAE website (1/23/2019, Taiwan)
- President of IAE [Gusev B.V.](#) was awarded. (9/20/2018, Taiwan)
- 10th Anniversary Celebration activity (1/23/2019, Taiwan)
- Congratulations from President of IAE Gusev B.V. (1/23/2019, Taiwan)
- RAE & IAE hold the 10th anniversary of TCIAE's foundation; President Chern Jenn-Chuan was invited to the General Assembly to deliver a speech (4/26/2019, Moscow)



TCIAE 10th Anniversary Celebration



President of TCIAE Jenn-Chuan Chern gives a presentation, titled the 10 years TCIAE development and contribution as a platform for science and technology exchanges between Taiwan and Russia.



TCIAE President gave a gift to the former representative of Russia.



Congratulations from President of IAE Gusev B.V. (video).



TCIAE members in the banquet to celebrate 10th anniversary.

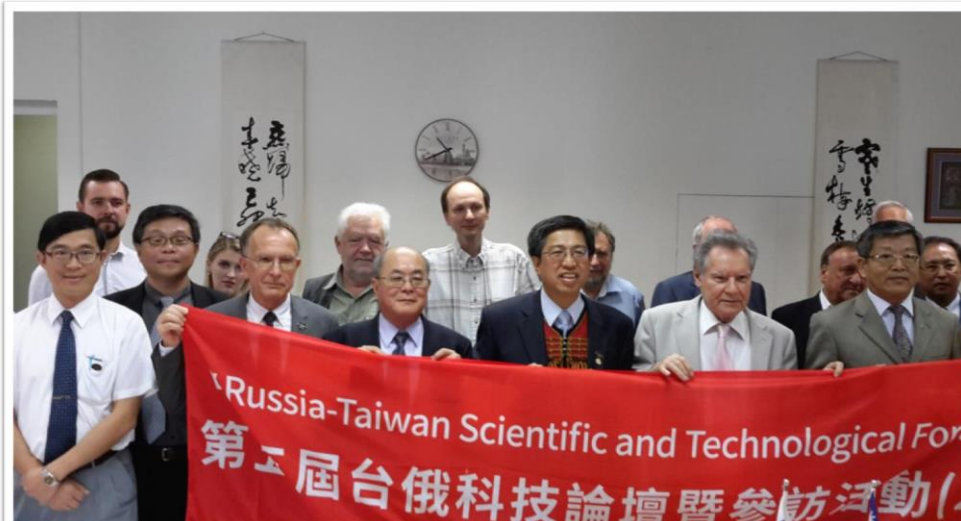
Future Outlook

- TCIAE will continue to work closely with IAE and RAE, recommending Taiwan's Science and Technology Elite as academician and communication academician, and in accordance with the founding goals, strengthen the promotion of S&T exchanges and industrial cooperation and development among Taiwan and Russia, and other IAE member countries.

Thanks -----

- The support from **MOST, Taiwan**
- The strong support and cooperation of “**Representative Office in Moscow for the Taipei-Moscow Economic and Cultural Coordination Commission (TMECCC)**”

5th Russia-Taiwan S&T Forum, 2017



Дом там, где поют родные песни.



Спасибо большое за внимание!
感謝聆聽 敬請指教



泰武國小古謠傳唱隊

20140817 從莫拉克颱風災後重建看見永續與創新