



## Choijil BAASANDASH

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### EDUCATION

- Doctor of Engineering**, Graduate School of Mechanical Engineering Science, Tokyo Institute of Technology (TiTech), Tokyo, Japan, (Certificate No.0433010) 2004  
Supervisor: Prof. Takashi Yabe  
Dissertation: “*Simulation and experiment on nanosecond-pulse YAG laser ablation with overlay structure*”
- Master of Engineering**, Graduate School of Mechanical Engineering Science, Tokyo Institute of Technology (TIT), Tokyo, Japan (Certificate No.0132004) 2001  
Supervisor: Prof. Takashi Yabe  
Thesis: “*The study on laser processing of the multi-layer materials*”
- Master of Engineering**, Mechanical Engineering School, Mongolian Technical University(MTU), Ulaanbaatar, Mongolia (Certificate No.M0025) 1994  
Supervisor: Prof. U.Enebish  
Thesis: “*Research work on manual crane equipments*”
- Bachelor of Mechanical Engineering**, Dep. Construction and road building machinery, Mongolian Technical University (MTU), Ulaanbaatar, Mongolia 1991  
(Certificate No. 12896)  
Supervisor: Prof. D. Deleg  
Thesis: “*Machinery for Ceramsite block production*”

### WORK EXPERIENCE

- Professor** of the Technological Management sector, Graduate School of Business /GSB/, **Coordinator** of GIGAKU Techno Park office, Tana laboratroy. Mongolian University of Science and Technology /MUST/ 2022-Present
- Special appointed Professor** Nagaoka University of Technology, Japan
- Scientific secretary** of the Graduate School of Business /GSB/, Mongolian University of Science and Technology/MUST/ 2017 to 2022
- Vice President on Research & Innovation**, Mongolian University of Science and Technology 2013 to 2017
- Head of Research Department**, Mongolian University of Science and Technology 2013
- Vice director of Research and Innovation**. School of Mechanical Engineering (SME), Mongolian University of Science and Technology (MUST former of MTU) 2011 to 2013
- Chief Research Engineer**. Electra Co.Ltd, Japan 2007 to 2011

<b>Assistant Professor.</b> Ennovative Research Initiatives, Graduate School of Science and Engineering , TokyoTech	2006 to 2007
<b>Fellow researcher(Post doctoral).</b> “The 21st century COE program” TokyoTech	2004 to 2006
<b>Lecturer.</b> Department of road building machinery, School of Mechanical Engineering(SME) at the MTU	1994 to 1997
<b>Research Associate.</b> Department of road building machinery, Faculty of Mechanical technology, MTU	1991 to1993

## **RESEARCH INTERESTS**

**Current: Business Model Development on AgriTech. Agro-Cooperation development through the Contract management with mechanization and technology.**

### **A. Laser processing and laser propulsion**

1. Nanosecond Pulsed YAG laser processing
2. Laser processing of glass materials

### **B. Laser deoxidization of mineral materials**

1. High power CW CO2 laser
2. Deoxidization of Magnesium oxide by CO2 laser
3. EPMA analyses Vacuum technology
4. Laser heating, laser ablation of metal oxides

### **C. Renewable energy and Solar pumped laser**

1. Solar pumped laser by NdYAG with Cr doping
2. Solar energy conservation technology

### **D. Water desalination technology**

1. Solar heating of water using of Fresnel lens
2. Desalination processes of salt waters

### **E. Numerical fluid dynamics**

1. Numerical method CIP (Constrained Interpolation Profile)

### **F. Business development**

1. Higher education development
2. Innovation and entrepreneurship studies
3. Agri Business model development

## **TEACHING POSSIBILITIES**

### **A. Undergraduate Courses:**

1. Fluid mechanics and fluid dynamics
2. Solid state physics
3. Materials processing and machine tools
4. Laser technology
5. Air/Hydro Automatic systems of industrial machinery

## 6. Road Building Machinery

### **B. Graduate Courses:**

1. Thermodynamics & Fluid dynamics
2. Advanced fluid dynamics
3. Numerical methods in fluid dynamics and laser ablation
4. Laser technology, solid state lasers
5. Introduction to Lasers and Advanced Technologies
6. EPMA (Electron Probe Micro Analyzer)
7. Basics of research methodology
8. Innovation and entrepreneurship development

### **MEMBERSHIP**

#### Present

- Chairman of the Mongolian Automobile Recyclers Association /MoARA/. Since 2015
- Chairman of the Mongolian Association of Electrolized Water Technology /MAEWT/ Since 2017
- Boarding Member of the Sustainable Carbon-Free Magnesium Power Association /SCFMPA/. Since 2020
- Secretary of the Academic Council, Graduate School of Business, Mongolian University of Science and Technology. Since 2017
- Editorial member of the “Innovation and Entrepreneurship” journal. Since 2017

#### Former

- Member of the Board of Directors, “Mongolian Railway” State Owned Shareholding Company. 2015-2017.
- Secretary of the Academic Council, Mongolian University of Science and Technology. 2014-2017

### **PUBLICATIONS**

#### Reviewed journal papers

1. Г.Базарсад, Ч.Баасандаш “Хаягдал хөнгөн цагааныг дахин ашиглах боломжийн судалгаа” ШУТИС эрдэм шинжилгээний бүтээлийн эмхтгэл, 23(03), 2023.
2. Ji Qiang, Zhao Yiyang, Ch.Baasandash “Research on Digital Transformation and Innovation of Inner Mongolia Manufacturing Enterprises in the Digital Economy Era” ICIED-2023.
3. Цолмонгийн Сонинхишиг, Болдбаатарын Энхтунгалаг, Чойжил Баасандаш нар. “Фотокатализ ба электролиз усны технологиудыг хослуулан эмнэлгийн дотоод халдварыг бууруулах туршилт, судалгаа” х. 28-90, 23(03)309, 2023
4. Чойжил Баасандаш, Энхбаярын Бүжинлхам, Дашдаваагийн Одончимэд, Баттулгын Ганбат, Мижддоржийн Банзрагч “Хоршоололд суурилсан хөдөө аж ахуйн хөгжлийн загвар ба 6-р аж үйлдвэржилт” ШУТИС эрдэм шинжилгээний бүтээлийн эмхэтгэл, х 209-216, 23(03)309, 2023
5. Ji Qiang, Ch.Baasandash “Review and Prospect of Business Model Innovation Research” (ICIED-2022) Scientific journal of Management & Innovation. 2022

6. Ji Qiang, Ch.Baasandash “Resource integration, dynamic capability and enterprise business model innovation” ICIED -2022. Scientific journal of Management & Innovation. 2022
7. Ji Qiang,Ch.Baasandash,Study on the Evolution Characteristics of the Coordination Degree between Industrial Structure and Employment Structure in China.Management & Innovation.2021(02)
8. Sugarsuren E, **Baasandash Ch**, Battuvshin G “X and Millennial employee job satisfaction factor study of Mongolia” Journal of Human Resource and Sustainability Studies, 2021
9. Bilguunmaa Myagmardulam, Ryu Miura, Fumie Ono, Toshinori Kagawa, Lin Shan, Tadachika Nakayama, Fumihide Kojima and **Baasandash Choijil**, “Performance Evaluation of LoRa 920 MHz Frequency Band in a Hilly Forested Area” Electronics 2021, 10, 502
10. Sh.Liao, T.Yabe, M.S.Mohamed, **C.Baasandash**, Y.Sato, C.Fukushima, M.Ichikawa, M.Nakatsuka, Sh. Uchida, T.Ohkubo. “Laser induced Magensium production using Silicon as a reducing agent towards sustainable energy cycle” The Review of Laser Eng., Vol.38, No.3, 202-206 (2010)
11. T.Yabe, M.S. Mohamed, S.Uchida, **C.Baasandash**, Y.Sato, M.Tsuji and Y.Mori, “Non-catalytic dissociation of MgO by laser pulses towards sustainable energy cycle” J. Appl. Phys **101**,123106 (2007)
12. T. Yabe, T. Ohkubo , S. Uchida, K. Yoshida, M. Nakatsuka, T. Funatsu, A. Mabuti, A. Oyama, K. Nakagawa, T. Oishi, K. Daito, B. Behgol, Y. Nakayama , M. Yoshida, S. Motokoshi, Y. Sato and **C. Baasandash** “High-Efficiency and Economical Solar-Energy-Pumped Laser with Fresnel Lens and Chromium Co-doped Laser Medium “Appl.Phys.Lett.**90**,261120(2007)
13. [T. Yabe](#), [S. Uchida](#), [K. Ikuta](#), [K. Yoshida](#), [C. Baasandash](#), [M. S. Mohamed](#), [Y. Sakurai](#), [Y. Ogata](#), [M. Tuji](#), [Y. Mori](#), [Y. Satoh](#), [T. Ohkubo](#), [M. Murahara](#), [A. Ikesue](#), [M. Nakatsuka](#), [T. Saiki](#), [S. Motokoshi](#), and [C. Yamanaka](#), *Appl.Phys.Lett*, **89**, 261107 (2006)
14. **C.Baasandash**,T.Yabe, J.Maehara, M.Yamaguchi, H.Wakatsuki “Crack-free processing of glasses by 1µm-YAG laser and translucent adhesive tape and its numerical analyses by CIP” Appl.Phys.A.**79**,1509-1511 (2004)
15. YABE.Takashi, OOOZONO Hirokazu, TANIGUCHI Kazumoto, OHKUBO Tomomasa, MIYAZAKI Shou, **BAASANDASH Choijil** and UCHIDA Shigeaki “Proposal for a Solid-Laser-Driven Vehicle” J. Plasma Fusion Res. Vol.**80**, No7, 547-548 (2004)
16. **Ch. Baasandash**, T. Yabe, J. Maehara, M Yamaguchi and and H. Wakatsuki “Crack-Free High-Aspect-Ratio Drilling of Glasses by 1 µm Yttrium Aluminum Garnet Laser and Translucent Adhesive Tape” Jpn. J. Appl. Phys. **43**. L133 (2004)
17. Yabe, T., Phipps, C. R., Aoki, K., Yamaguchi, M., Nakagawa, R., **Baasandash, C.**, Ogata, Y., Shiho, M., Inoue, G., Onda, M., Horioka, K., Kajiwara, I. and Yoshida, K., Laser-driven vehicles - from inner-space to outer-space, Applied Physics A, Materials Science & Processing, Vol.**77**, 243 ,(2003)
18. T. Yabe, C. Phipps, M. Yamaguchi, R. Nakagawa, K. Aoki, H. Mine, Y. Ogata, **C. Baasandash**, M. Nakagawa, E. Fujiwara, K Yoshida, A. Nishiguchi and I. Kajiwara “Microairplane propelled by laser driven exotic target” Appl Phys Let. **80**.4318. (2002)
19. T. Yabe, C. Phipps, K. Aoki, M. Yamaguchi, R. Nakagawa, H. Mine, Y. Ogata, **C. Baasandash**, M. Nakagawa, E. Fujiwara, K Yoshida and I. Kajiwara: J.Plasma Fusion Res. **77**.1177 (2001)
20. D.Altangerel, U.Enebish, G.Batsaikhan. **Ch.Baasandash**. “Research and development works on small cranes” R&D report. 1995.
21. D.Altangerel, U.Enebish, D.Deleg, G.Batsaikhan. **Ch.Baasandash**. “R&D on the building-wall material producing equipment” R&D Report documents. 1992.

#### Proceeding papers

1. Enkhbaatar Sugarsuren, Battuvshin.G, **Baasandash.Ch** “Non-traditional management approach and generation” Science and Technology Research. 2021, Petrozavodsk.
2. T.Nakayama, B.Battur, **Ch.Baasandash** “Study of UAV Taxiing and Landing Using an FPV Camera” APISAT-2016
3. Ya. Obikane, **Ch.Baasandash** “The Sky-Infra Project in Mongolia and the Aero-space education project” APISAT-2015

4. **Baasandash CHOIJIL**, Tsolmonbaatar DANJKHUU, and Yasuo OBIKANE ““Sky-Infra Project in Mongolia:Logistics and Environmental monitoring” APISAT-2013 The 2013 Asia- Pacific International Symposium on Aerospace Technology, Takamatsu, Japan
5. **Ch. Baasandash**, T. Yabe, S.Uchida, Y.Sato, T. Ohkubo, T.Funatsu, M.S.Mohamed, B.Behgol, Y.Sakurai, Y.Mori “Sunlight laser and magnesium reservoir for sustainable new-energy cycle” The Asian New and Renewable Energy Technology Symposium, ANRET 2007, 7-9 July, Ulaanbaatar, p.76-80 (2007)
6. Yabe, Takashi; Ikuta, Kazunari; **Baasandash, Choijil**; Katano, Ryoichi; Uchida, Shigeaki; Tsuji, Minoru; Mori, Yuichi; Maehara, Jun; Mahmoud, Mohamed Salah; Toya, Tomohiro; ” MgO Deoxidization by Focused Laser Pulse for a New Energy Cycle” BEAMED ENERGY PROPULSION: Fourth International Symposium on Beamed Energy Propulsion. AIP Conference Proceedings, Volume 830, pp. 447-456 (2006)
7. Ohkubo, Tomomasa; Yabe, Takashi; Miyazaki, Sho; **Baasandash, Choijil**; Taniguchi, Kazumoto; Mabuchi, Akito; Tomita, Daisuke; Ogata, Yoichi; Hasegawa, Jun; Horioka, Kazuhiro; “Laser Propulsion Using Metal-Free Water Cannon Target” BEAMED ENERGY PROPULSION: Third International Symposium on Beamed Energy Propulsion. AIP Conference Proceedings, Volume 766, pp. 394-405 (2005).
8. Yabe, Takashi; Ohzono, Hirokazu; Ohkubo, Tomomasa; **Baasandash, Choijil**; Yamaguchi, Masashi; Oku, Takehiro; Taniguchi, Kazumoto; Miyazaki, Sho; Akoh, Ryosuke; Ogata, Yoichi; Rosenberg, Benjamin; Yoshida, Minoru “Proposal of Liquid Cannon Target Driven by Fiber Laser for Micro-Thruster in Satellite” BEAMED ENERGY PROPULSION: Second International Symposium on Beamed Energy Propulsion. AIP Conference Proceedings, Volume 702, pp. 503-512 (2004).
9. Yabe, Takashi; **Baasandash, Choijil**; Maehara, Jyun;” Simulation and experiment on femtosecond and nanosecond laser processing” High-Power Laser Ablation V. Edited by Phipps, Claude R. Proceedings of the SPIE, Volume 5448, pp. 581-585 (2004)
10. Yabe, Takashi; Oozono, Hirokazu; Taniguchi, Kazumoto; Ohkubo, Tomomasa; Miyazaki, Sho; Uchida, Shigeaki; **Baasandash, Choijil**; “Proposal of laser-driven automobile” High-Power Laser Ablation V. Edited by Phipps, Claude R. Proceedings of the SPIE, Volume 5448, pp. 428-431 (2004).
11. **Ch. Baasandash**, T. Yabe, T. Oku, T. Ohkubo, M. Yamaguchi, H. Ohzono, K. Taniguchi, Sh. Miyazaki, R. Akoh, Y. Ogata and K. Fushinobu. “ Near-Term Application of Water-Powered Laser-Propulsion”: Proceedings of the Second International Symposium on Beamed Energy Propulsion, Sendai, 20-23 October, AIP Conference proceedings Vol. 702 (2004).513-521
12. Yamaguchi, Masashi; Nakagawa, Ryou; Yabe, Takashi; **Baasandash, Choijil**; Aoki, Keiichi; Ohkubo, Tomomasa; Sakata, Masashi; Ogata, Youichi; Nakagawa, Masamichi;” Laser-Driven Water-Powered Propulsion and Air Curtain for Vacuum Insulation” BEAMED ENERGY PROPULSION: First International Symposium on Beamed Energy Propulsion. AIP Conference Proceedings, Volume 664, pp. 557-570 (2003).
13. T. Yabe, R. Nakagawa, M. Yamaguchi, T. Ohkubo, K. Aoki, **C. Baasandash**, H. Oozono, T. Oku, K. Taniguchi, M. Nakagawa, M. Sakata, Y. Ogata and G. Inoue. First International Symposium on Beamed Energy Propulsion.AIP Conf. Proceedings. 664,185. New York (2003)
14. Aoki, Keiichi; Yabe, Takashi; Nakagawa, Ryo; Yamaguchi, Masashi; **Baasandash, Choijil**;” Numerical and experimental studies of laser propulsion toward micro-airplane” Proc. SPIE Vol. 4760, p. 918-928, High-Power Laser Ablation IV, Claude R. Phipps; Ed. (2002)
15. T. Yabe, C. Phipps, R. Nakagawa, M. Yamaguchi, K. Aoki, **C. Baasandash**, H. Abe, N. Yoshida, Y. Ogata, M. Nakagawa, E. Fujiwara, K Yoshida, A. Nishiguchi, K. Ochi and I. Kajiwara: Proceedings of the 2th International Conference on Inertial Fusion Sciences and Applications, Elsevier, Kyoto, Japan, 9-14 September (2001)
16. **Ch. Baasandash**, J. Maehara, Y. Kondoh and T. Yabe “Numerical analysis on the nanosecond and femtosecond laser processing and comparison with experimental results” IFSA 2001, (Kyoto, Japan) Elsevier 1073. (2001)
17. Jun Maehara, **Choijil Baasandash**, Masamiti Nakagawa, Takashi Yabe. “Numerical simulation of laser processing by CIP method” 第 14 回数值流体力学シンポジウム(2000)
18. 磁化力と電磁力を利用した液体の変形と位置制御 阿部英裕(東工大), 岡田拓世(住友重工), Choijil Baasandash, 麦建強, 山根隆一郎, 大島修造(東工大)“第 11 電磁力関連のダイナミクス” シンポジウム反磁性流体の安定輸送 吉田直樹(東工大), 安藤篤史(豊田工機), Choijil Baasandash, 麦建強, 大島修造, 山根隆一郎(東工大) “第

11 電磁力関連のダイナミクス“シンポジウム

19. **Ch.Baasandash**, G.Batsaikhan, G.Batnemekh, S.Enkhbat, N.Batbaatar “Study on a porous material dumping process” Proceedings of Polytechnical Institute of Mongolia, UB (1990)
20. **Ch.Baasandash**, T.Yabe, Sh.Uchida, R.Naidandorj, D.Deleg etc., “Clæen energy cycle using of Magnesium and solar pumped laser” Conference of Nanotechnology-2007. NUM. (2007)
21. **Ch.Baasandash**, T.Yabe, Sh.Uchida, R.Naidandorj, D.Deleg etc., Proceeding of the “High technology and economical development issues”, Mongolian University of Science and Techn., (2007)

### Books

1. “Их сургууль, эрдэм шинжилгээний болон технологи дамжуулах байгууллагуудад зориулсан оюуны өмчийн гэрээний гарын авлага” **Ч.Баасандаш**, Д. Дамдинбаяр, М. Тэмүүлэй. ШУТ сан. УБ. 2022.
2. “ХАБЭА-н ажлын эдийн засгийн үр ашгийн үнэлгээ” Байгууллагын стандартыг нэвтрүүлэх арга зүй, судалгаа шинжилгээний үр дүн. Зохиогч Б.Баттайван, Редактор **Ч.Баасандаш**. ISBN: 978-9919-9783-5-8 Орхон аймаг 2022.
3. Боловсролын салбарын төсөл, хөтөлбөрт: Туршилтын болон туршилтын бус аргаар үнэлгээ хийх тоон ба чанарын арга. Редактор. **Ч.Баасандаш**, Зохиогчид: Б. Болормаа, Ч. Должинсүрэн, Б. Бат-өлзий. 5,5 х.х. 2021.

### PATENTS

1. 特願 2008-276340 (Proof)
2. Patent number: PCT/JP2009/068364 “LASER REFINING APPARATUS AND LASER REFINING METHOD” (<http://www.wipo.int/pctdb/en/wo.jsp?WO=2010050450>)
3. Patent number: No548 1991/03/06 Mongolia “Self dumping machinery ”

### PROJECTS AND ACTIVITIES

1. “Sky Infra in Mongolia” UAV project. Sponsored by Mongolian Foundation of Science and Technology. Project leader 2014-2017
2. Establishment of the Kosen style Technology High School at Mongolian University of Science and Technology, Project leader 2014
3. Survey on the Transformation of Advanced Technological Results into the Industry. Sponsored by Mongolian Foundation of Science and Technology.2014-2016
4. Mongolia Japan Engineering Education Development /MJEED/ project. JICA and MECS. 2014-2023
5. National Program on Research University Development in Mongolia Project. ADB, TA-9663 MON. National advisor. 2018-2020.
6. Survey on establishment of the ELV Recyclers Center in Ulaanbaatar. Project leader. Sponsored by KOIKA and Autoeco co.ltd (Korea). MUST-MES 2011-2013.
7. Founder of the “Tana” design thinking laboratory at the Graduate School of Business, MUST. 2017
8. “Garlic farming with modern machinery” joint project with Kunsan National University, Korea. Project leader in Mongoliana University of Science and Technology. 2019. May-present
9. Joint project on the “Genom editing technologies for development of the Mongolian husbandry sector”. Setsuro-Tech LLC, Japan and Mongolian University of Live Sciences. Business advisor. Since 2019.
10. “Project for contract management in rural Dairy farms partnership for hay production improvement in Mongolia”. Tokachi Association of Agricultural Machinery, Japan. Grass-roots program, JICA. Mongolian team coordinator. Since 2020.

### HONORS & AWARDS

“Erdmiin chuulgan MUST” research presentation award	2023
“Best paper award” MUST	2022
“Honor of labor” medal. Government of Mongolia.	2020
“Best official of Science” award, Ministry of Edu., Sci and Cult Mongolia	2018
“Best official of Auto-transportation” award, Ministry of Edu Sci and Cult Mongolia	2017
“Best official of Industry” award, Ministry of Industry, Mongolia	2015
“Best official of Education” award, Ministry of Road Trans Dev	2013
“Greenpreneur award” Mongolian National Chamber of Commerce and Industry	2012
Euro-Cansat championship. Madrid, Gold and Silver medal	2012
MONBUSHO Fellowship on the “21 <sup>st</sup> Century: Center of Excellence Program”, Japan	2004
“Young inventor” bronze medal.	1983

## **LANGUAGES**

Language	Listening	Speaking	Writing	Reading
Mongolian	Native	Native	Native	Native
Russia	Good	Good	Good	Good
English	Good	Good	Good	Good
Japanese	Good	Good	Good	Good