

Basic Converging Science Research Center

Keywords

Basic/Converging Science, Plasma Bioscience, Biosensors/Biomedicine, Mathematical Principles in Vital Phenomena, Healthcare Systems

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Current Projects

1. Plasma Bioscience

Bio-micro Plasma

2. Biosensors/Biomedicine

Continuous Blood Glucose Monitoring Sensor

Substances to Control Functional Strengthening of Stem Cells

3. Cutting Edge Energy/Materials

Design and Synthesis of Functional Inorganic Nanoparticles

Organometallic Chemical Reaction

4. Mathematical Principles in Vital Phenomena

Theorization of the Fluctuation in Vital Phenomena

5. Healthcare Systems Research Lab

Healthcare Systems



Overview of Developed Technology

Definition of Technology (Title of Technology) Quaternary 1-error correcting (7,256,3) DNA barcode

Researcher in Charge	Km, Sang-mok	Division	Department of Mathematics
Stage of Technological Development	Stage of Ideation / Development		
Principles of the Technology	Encoding and decoding methods of Hamming distance based 4-ary error correcting codes		
Applications	DNA Barcoding		
Keywords	DNA Barcoding		

Definition of Technology (Title of Technology) Technology for Biocompatibility Enhancement of Interstitial Medical Devices exploiting Biomimetic Techniques

Researcher in Charge	Shin, Jae-ho	Division	Department of Chemistry
Stage of Technological Development	Stage of Pilot Production / Practicalization		
Principles of the Technology			
Applications	<ul style="list-style-type: none"> Development of continuous interstitial glucose monitoring sensor Development of interstitial medical devices (catheter, operative fixtures) and equipment (sensors, cardiac pacemaker, insulin pump) of enhanced biocompatibility 		
Keywords	Continuous glucose monitoring sensor, Biocompatibility, Biomimetics, Medical implant, Nitric oxide-releasing nanostructured materials		

Patents

- Atmospheric Pressure Plasma Generator, 10-1633586, June 20, 2016
- A Composite containing Active Ingredients of the 4-isopropyl-2,6-Bis(1-phenylethyl)Aniline applicable to Prevention or Treatment of Cancers, Sep. 23, 2015
- Continuous Blood Glucose Monitoring Sensor, 10-1512566, Apr. 09, 2015
- A Composite containing Active Ingredients of the 4-isopropyl-2,6-Bis(1-phenylethyl)Phenol originated from Naematoloma Fasciculare Cordyceps Sinensis applicable to Prevention or Treatment of Cancers, 10-1465238, Nov. 19, 2014
- A Biosensor and Manufacturing Methods thereof for the Measurement of Glucose Concentration, 10-1450385, Oct. 06, 2014

Current Projects

- Newly Started Studies for 2016 Basic Research Projects, 2016, Ministry of Science, ICT and Future Planning
- Development of BR/SSBR Reactor Cleaning Catalyst, 2016-2017, 2016, LG Chemistry Co., Ltd.
- High Efficiency Long-life Self Assembly/Organizing Polymer Solar Cell, 2016, Supportive Project for Leading Researchers
- Development of the Technology for Manufacturing Highly Functional Polyethylene Wax through Polymerization (2nd Year), 2016-2017, Korea Institute of Industrial Technology Evaluation & Planning (ITEP)
- Mathematical Study on the Improvement of Error Correction of Indexed Base Sequence for Next Generation Technology of Base Sequencing Technology, 2016, Korea Foundation for the Advancement of Science and Creativity (KOFAC)
- Development of Atmospheric Pressure Plasma Texturing Device for 6-inch Crystalloid Solar Cells (3rd Year), 2015, Korea Institute of Energy Technology Evaluation and Planning
- Development of Continuous Interstitial Glucose Monitoring Sensor of Enhanced Biocompatibility, 2015-2018, Ministry of Science, ICT and Future Planning
- Design and Synthesis of Low Molecular Compound for Stem Cells Functional Strengthening and Control of Differentiation-Specific Gene Expression, 2015-2020, National Research Foundation of Korea
- A Study on Physical Properties of Various Bio-Systems using Computer Simulation, 2015-2018, National Research Foundation of Korea

Publications

- A Dynamic Programming Approach to Subsistence Consumption Constraints on Optimal Consumption and Portfolio, 2016, Journal of Computational Analysis and Applications
- Aligned silver nanowire-based transparent electrodes for engineering polarisation-selective optoelectronics, 2016, Scientific Reports
- Copper-Catalyzed Aza-Michael Addition of Aromatic Amines or Aromatic Aza-Heterocycles to α, β -Unsaturated Olefins, 2016, The Journal of Organic Chemistry
- Plasma Enhanced Atomic Layer Deposition of SiO₂ Using Space-Divided Plasma System, 2016, Science of Advanced Materials
- Spherically-Clustered Porous Au-Ag Nanoparticle Prepared by Partial Inhibition of Galvanic Replacement and its Application for Efficient Multi-modal Therapy, 2015, ACS Nano
- Local Non-equilibrium Thermodynamics, 2015, Scientific reports