

Donghwa Yun

President of Z-tek - Facility of Rocky Mountain Instrument at Korea

Westminster, CO 80234

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Highly proficient chemical engineer with over 10 years of experience leading and supporting projects by performing academic laboratory and industry work to improve product performance, troubleshoot, and complete technology submissions and approvals. Skilled in creating and implementing best practice engineering vision, strategy, policies, processes, and procedures to aid and improve technical and manufacturing performance.

Willing to relocate: Anywhere

Work Experience

President of Z-tek

ROCKY MOUNTAIN INSTRUMENTS - Lafayette, CO

September 2018 to January 2021

- Established Z-tek in Korea for CVD SiC/ZnSe production as a facility of RMI.
- Officiated all SiC/ZnSe production at Z-tek.
- Led R&D team for developing synthesis of H₂Se gas as a raw material.
- Improved manufacturing efficiency by using a semiconductor process.

Director Department of Engineering and R&D

ROCKY MOUNTAIN INSTRUMENTS - Lafayette, CO

September 2016 to January 2018

- Managed a production process for key customers.
- Developed optic manufacturing process using CNC and diamond turning machine.
- Developed a new method of calcinating YAG (yttrium aluminum garnet) material with various dopants.

Engineering Manager

ROCKY MOUNTAIN INSTRUMENTS - Lafayette, CO

September 2015 to September 2016

- Established and managed the optomechanical department and engineers.
- Developed a CVD process for SiC/ZnSe and DLC (diamond-like carbon).
- Designed and assessed optical lens and optomechanical assembly.

Post-Doctoral Fellowship

Department of Bioengineering, University of Colorado Anschutz Medical Campus - Aurora, CO

February 2012 to March 2015

- Synthesized multi-functional polymers (polyurethane, copolymer, conducting polymer).
- Synthesized chemical and physical hydrogels.
- Differentiated human neural stem cells into motor neurons.
- Developed chemical conjugation and modification of various organic chemicals and materials.
- Developed polymer scaffold for central nervous system regeneration.

Senior Researcher

Hanmedics Co. Ltd - Seoul, KR
January 2006 to February 2008

- Developed electrochemical biosensors for liver malfunction (urea, glucose, cholesterol).
- Evaluated electrochemical reaction between biomaterial and enzyme.

Education

Ph.D. in Chemical & Biological Engineering

Graduate School of Engineering, Korea University - Seoul, KR
March 2004 to August 2011

M. S. in Microsystem Technology/Electrochemistry

Graduate School of Bio-Microsystem Technology, Korea University - Seoul, KR
March 2002 to February 2004

B. S. in Chemistry

Korea University - Seoul, KR
March 1993 to February 2001

Skills

- MATLAB (2 years)
- Research & Development
- Manufacturing management
- Design software (AutoCAD, Solidworks, Zemax) (5 years)
- Surface analysis (SEM, TEM, AFM, XRD, XPS) (10+ years)
- Analytical electrochemistry (potentiostat/galvanostat) (10+ years)
- Micro- and nano semiconductor process (8 years)
- Human stem cell, cell line, and bacteria culture (5 years)

Military Service

Branch: Republic of Korean Army

Service Country: South Korea

Rank: Sergeant

September 1995 to November 1997

R.O.K Army Ranger designed for special missions and operations. Capabilities include conducting airborne and air assault operations, seizing key terrain such as airfields, destroying strategic facilities, and capturing or killing enemies of the nation.

Commendations:

A certificate of commendation in 1st Division 1997

Awards

Seoul Science Fellowship

2005

Seoul Science Fellowship from Seoul Metropolitan Government

The first prize of Semiconductor Process Education

2003

The first prize of Semiconductor Process Education from Inter-University Semiconductor Research Center, Seoul National University

Academic Scholarship

Academic Scholarship, 1995, 1998-1999, 2003-2007

Patents

A method for preparing a urease immobilization layer for biosensor (#1007269630000)

2007

A method for preparing a urease immobilization layer for biosensor

Detergent for a private receptacle collecting urine ora urinal receptacle (#1006926090000)

2007

Detergent for a private receptacle collecting urine ora urinal receptacle

High sensitive bio-sensor and complex bio-sensor therewith (#007291470000)

2007

High sensitive bio-sensor and complex bio-sensor therewith

Publications

Special Series Advanced Polymers in Stem Cell Biology & Medicine

2015

Substantial Differentiation of Human Neural Stem Cells Into Motor Neurons on a Biomimetic Polyurea

2015

Biomimetic poly(serinol hexamethylene urea) for promotion of neurite outgrowth and guidance

2014

A biomimetic reverse thermal gel for 3-dimensional neural tissue engineering

2014

Fabrication and Electrochemical Characterization of Nanoporous Silicon Electrode for Amperometric Urea Biosensor

2012

High-sensitivity non-enzymatic glucose biosensor based on Cu(OH)₂ nanoflower electrode covered with boron-doped nanocrystalline diamond layer

2012

An electrochemical biosensor array for rapid detection of alanine aminotransferase and aspartate aminotransferase

2009

Electrochemical biosensor array for liver diagnosis using silanization technique on nanoporous silicon electrode

2007

Comparison of effective working electrode areas on planar and porous silicon substrates for cholesterol biosensor

2006

Highly sensitive and renewable amperometric urea sensor based on self-assembled monolayer using porous silicon substrate

2005

Additional Information

1. Micro- and nano semiconductor process, MEMS
2. Surface analysis (SEM, TEM, AFM)
3. CVD & Synthesis of nanowire (ZnSe, Si, CNT, and Metal oxide)
4. Surface functionalization of nanomaterials (silicon nanowire, nanoparticle, CNT)
5. Synthesis of polymers and electrospun nanofiber
6. Analytical electrochemistry (potentiostat)
7. Analytical chemistry (NMR, UV, IR, GC-MASS, GPC)
8. Organic synthesis (encapsulated enzyme nanoparticles, organic compounds)
9. Cell and bacteria culture (human stem cell, primary culture, cell line)
10. Biosensors (urea, glucose, liver function, DNA)