A Brief Highlight of Korean American Engineers

August 17, 2002
For A Centennial Celebration of Korean Immigration to United States
By
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Scope of Engineering in US (ASEE 1893- )

- Civil Engineering
- Mechanical Engineering
- Mining and Metallurgy
- (Steam Engineering)
- (Military Engineering)
- Electrical Engineering
- Chemical Engineering
- Industrial Engineering
- Aeronautical/Astronomical Engineering
- Nuclear Engineering
- Naval Architecture/Engineering
- Biomedical Engineering/Bioengineering
- Agricultural Engineering/Biological Engineering
- Ocean Engineering
- Petroleum Engineering
- Materials Science/Engineering
- Computer Engineering, Computer Science
- Software Engineering
- Environmental Engineering
- System Engineering
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<tr>
<td>1893-1914</td>
<td>Development of formal engineering education</td>
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<td>1914-1940</td>
<td>Evaluation (WWI, Automobile-post Model T)</td>
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<td>Scientific Period (WWII, Cold War; Sputnik; Transistor, IC)</td>
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<td>1940-1970</td>
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<td>Diversification (race, gender, more foreign scholars)</td>
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<td>1970-1990</td>
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<td>IT revolution; Nanotech; Biotech</td>
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<td>1990-Now</td>
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First Successful Operation of MOS Transistor
by Dr. Dawon Kahng
(May 4, 1931-May 13, 1992)

- Dr. Kahng, in collaboration with M. Atalla, fabricated a MOSFET using a gate insulator formed from high quality SiO2 grown in situ by a new high-pressure steam oxidation process at Bell Labs (1960)
- First successful demonstration of MOSFET and a major milestone in semiconductor technology
- Invented in 1967 a field effect memory, the first nonvolatile silicon memory (floating gate memory)
- Became Founding President of NEC, Princeton, NJ in 1988
  (SNU (BS), Ohio State Univ. (Ph.D. 1959)
Distinguished Prof. Nam Pyo Suh of MIT

- Ralph E and Eloise F Cross Prof. Of Mechanical Engineering
- Director, Manufacturing Institute
- KBS Award; Ho-Am Prize; Ennor Manufacturing Technology Award (ASME)
- Honorary degrees from U of Massachusetts; Royal Institute of Technology, Sweden; WPI
- S.B.’59, S.M.’61 (MIT), Ph.D.’64 (CMU)
Pioneering Materials Scientist and Inventor
Prof. Sungho Jin, UCSD

- Over 180 inventions by Mar. 2002
- Over 200 papers with approx. 5000 citations
- Technical Manager of Bell Labs (1976-2002)
- Now Endowed Chair Prof. at UC San Diego (July 2002- )
- Pioneering research in magnetic materials, superconductor materials, developed lead-free solders, optical MEMS switch
- NAE member; Ho-Am Engineering Prize; Superconducting Week’s “Person of the Year Award (1990)
Pioneering Bioinformatist, Dr. Sangtae Kim

- VP and Information Officer at Lilly Research Labs, IN
- Adjunct Prof. Dept. of Chemical and Biomolecular Engineering, Univ. of Illinois at Urbana; formerly Dept. Chair of Chemical Engineering, Univ. of Wisconsin-Madison
- Established theoretical framework and advanced computational strategies for understanding and predicting microstructure evolution, and computational biology
- Allan P. Colburn Award, AIChE; Award for Initiatives in Research, National Academy of Sciences
- NAE Member
- BS & MS ’79 (Caltech), PhD (’83, Princeton)
Eminent Computer Scientists

- Dr. SeJune Hong (IBM-T.J. Watson Research Center)
  - International expert on fault-tolerant computing and AI
  - Served as Senior Manager of T. J. Watson Research Center
  - Deep interest in and contribution to linking technology to society and education (volunteer for Jaycee, UIUC alumni board, KSEA, BK21, etc.); Adjunct Prof. UIUC
  - Foreign member of NAE-Korea
  - BS ('65, SNU), MS & PhD ('69, UIUC)- shortest thesis (19 pages)

- Prof. Kane Kwanghae Kim (UCI)
  - Pioneer of Time-Triggered Message Triggered Object (TMO) based high-level real-time programming
  - Developed cost-effective ultra-reliable fault-tolerant real-time distributed and parallel computer systems
  - IEEE Computer Society Technical Achievement Award (1998)
  - BS ('69 SNU), MS ('72 UT-Austin), PhD ('74 UC Berkeley)
Korean-Americans’ Engineering Success - My Personal Observation

- Many World-Class Scholars and Engineers
- Early adaptation of American approach for Innovation in Science and Engineering
- Focus, Focus, Focus
- Dedication to Science and Engineering
- PhD (Persistently, honorably, diligently) beyond PhD degree
- Good heart for Mother Nation (Korea) and younger generation (involvement in KSEA, BK21 and other functions that can benefit Korea)