

## Kişisel Bilgiler

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## Eğitim Bilgileri

Doktora, Korea Advanced Institute Of Science And Technology, College Of Engineering, Department Of Electrical Engineering And Computer Science, Güney Kore 1996 - 2000

Yüksek Lisans, Korea Advanced Institute Of Science And Technology, College Of Engineering, Department Of Electrical Engineering, Güney Kore 1994 - 1996

Lisans, Korea Advanced Institute Of Science And Technology, College Of Engineering, Department Of Electrical Engineering, Güney Kore 1990 - 1994

## Yabancı Diller

İngilizce, C1 İleri

Korece, C1 İleri

## Yaptığı Tezler

Doktora, A low voltage RF MEMS switch, Korea Advanced Institute Of Science And Technology, Engineering, Electrical Engineering, 2000

Yüksek Lisans, Optical coupler sensor with movable waveguide, Korea Advanced Institute Of Science And Technology, Engineering, Electrical Engineering, 1995

## Araştırma Alanları

Elektrik-Elektronik Mühendisliği, Elektronik, Dönüştürücüler ve Algılama Aygıtları , Nanoteknoloji, Optik ve Fotonik, Pasif Devre Elemanları, Anahtarlar ve Konnektörler , MEMS, Optik Malzeme ve Aygıtlar , Mühendislik ve Teknoloji

## Akademik Unvanlar / Görevler

Dr.Öğr.Üyesi, Abdullah Gül Üniversitesi, Mühendislik Ve Doğa Bilimleri Fakültesi, Elektrik-Elektronik Mühendisliği, 2018 - Devam Ediyor

Yrd.Doç.Dr., Abdullah Gül Üniversitesi, Mühendislik Ve Doğa Bilimleri Fakültesi, Elektrik-Elektronik Mühendisliği, 2014 - 2018

Yrd.Doç.Dr., Louisiana State University And Agricultural And Mechanical College, College Of Engineering, Electrical And Computer Engineering, 2005 - 2012

Araştırma Görevlisi Dr., University Of California, Los Angeles, School Of Engineering And Applied Science, Electrical Engineering, 2004 - 2005

Diğer, Electronics And Telecommunications Research Institute, Human Information Research, Microsystems, 2002 - 2004

Araştırma Görevlisi Dr., University Of California, Los Angeles, School Of Engineering And Applied Science, Electrical Engineering, 2000 - 2001

Araştırma Görevlisi Dr., Korea Advanced Institute Of Science And Technology, Engineering, Electrical Engineering, 2000 - 2000

Araştırma Görevlisi, Korea Advanced Institute Of Science And Technology, Engineering, Electrical Engineering, 1994 - 2000

## Yönetilen Tezler

- HAH D., Foldable substrates for micro-ultrasonic transducers, Yüksek Lisans, K.Balasubramanian(Öğrenci), 2011
- HAH D., Surface-enhanced Raman spectroscopy substrates based on nanoporous silicon and pattern transfer, Yüksek Lisans, P.Rao(Öğrenci), 2011
- HAH D., Back-end processing of scanning mirrors with scratch drive actuators, Yüksek Lisans, P.Pai(Öğrenci), 2011
- HAH D., Two-dimensional microscanners with T-shaped hinges and piezoelectric actuators, Yüksek Lisans, W.Song(Öğrenci), 2009
- HAH D., A study on buckled-beam actuators for RF MEMS applications, Yüksek Lisans, S.Park(Öğrenci), 2007

## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- **Analytical design of MEMS variable capacitors based on shaped-finger comb-drives**  
Hah D.  
Microsystem Technologies, 2019 (SCI Expanded İndekslerine Giren Dergi)
- **C-band optical filters with micromechanical tuning**  
Hah D.  
MICROSYSTEM TECHNOLOGIES-MICRO-AND NANOSYSTEMS-INFORMATION STORAGE AND PROCESSING SYSTEMS, cilt.24, ss.551-560, 2018 (SCI İndekslerine Giren Dergi)
- **A design method of comb-drive actuators for linear tuning characteristics in mechanically tunable optical filters**  
Hah D.  
Microsystem Technologies, cilt.23, ss.3835-3842, 2017 (SCI İndekslerine Giren Dergi)
- **Clinical probe utilizing surface enhanced Raman scattering**  
Kim J., HAH D., Daniels-Race T., Feldman M.  
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, cilt.32, 2014 (SCI İndekslerine Giren Dergi)
- **Note: Folded optical system for narrow forward looking probe**  
Hou H., Hah D., Kim J., Feldman M.  
REVIEW OF SCIENTIFIC INSTRUMENTS, cilt.85, 2014 (SCI İndekslerine Giren Dergi)
- **Nanorough gold for enhanced Raman scattering**  
Kim J., Kang K., Sarkar A., Malempati P., Hah D., Daniels-Race T., Feldman M.  
JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, cilt.31, 2013 (SCI İndekslerine Giren Dergi)
- **Electrophoretic Deposition of Carbon Nanotubes on Silicon Substrates**  
Sarkar A., Hah D.  
JOURNAL OF ELECTRONIC MATERIALS, cilt.41, ss.3130-3138, 2012 (SCI İndekslerine Giren Dergi)
- **Combined soil moisture meter and penetrometer**  
Feldman M., Hah D., Hanifa K., Zhang Z.  
Geotechnical Testing Journal, cilt.35, ss.437-440, 2012 (SCI İndekslerine Giren Dergi)
- **Mechanically tunable optical filters with a microring resonator**  
Hah D., Bordelon J., Zhang D.  
APPLIED OPTICS, cilt.50, ss.4320-4327, 2011 (SCI İndekslerine Giren Dergi)
- **Analysis of resonant optical gyroscopes with two input/output waveguides**  
Hah D., Zhang D.  
OPTICS EXPRESS, cilt.18, ss.18200-18205, 2010 (SCI İndekslerine Giren Dergi)
- **Experimental characterization of two-axis MEMS scanners with hidden radial vertical combdrive actuators and cross-bar spring structures**  
Tsai J., Hsieh T., Liao C., Chiou S., Hah D., Wu M. C.  
JOURNAL OF MICROMECHANICS AND MICROENGINEERING, cilt.19, 2009 (SCI İndekslerine Giren Dergi)
- **Pre-shaped buckled-beam actuators: Theory and experiments**  
Park S., Hah D.  
SENSORS AND ACTUATORS A-PHYSICAL, cilt.148, ss.186-192, 2008 (SCI İndekslerine Giren Dergi)
- **Two-axis MEMS scanners with radial vertical combdrive actuators - design, theoretical analysis, and fabrication**

Tsai J., Chiou S., Hsieh T., Sun C., Hah D., Wu M. C.

JOURNAL OF OPTICS A-PURE AND APPLIED OPTICS, cilt.10, 2008 (SCI İndekslerine Giren Dergi)

- **1 x N-2 wavelength-selective switch with two cross-scanning one-axis analog micromirror arrays in a 4-f optical system**

Tsai J., Huang S., Hah D., Wu M.

JOURNAL OF LIGHTWAVE TECHNOLOGY, cilt.24, ss.897-903, 2006 (SCI İndekslerine Giren Dergi)

- **MEMS-actuated photonic crystal switches**

Lee M., Hah D., Lau E., Toshiyoshi H., Wu M.

IEEE PHOTONICS TECHNOLOGY LETTERS, cilt.18, ss.358-360, 2006 (SCI İndekslerine Giren Dergi)

- **Surface- and bulk-micromachined two-dimensional scanner driven by angular vertical comb actuators**

Piyawattanametha W., Patterson P., Hah D., Toshiyoshi H., Wu M.

JOURNAL OF MICROELECTROMECHANICAL SYSTEMS, cilt.14, ss.1329-1338, 2005 (SCI İndekslerine Giren Dergi)

- **A self-aligned vertical comb-drive actuator on an SOI wafer for a 2D scanning micromirror**

Hah D., Choi C., Kim C., Jun C.

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- **Angular vertical comb-driven tunable capacitor with high-tuning capabilities**

Nguyen H., Hah D., Patterson P., Chao R., Piyawattanametha W., Lau E., Wu M.

JOURNAL OF MICROELECTROMECHANICAL SYSTEMS, cilt.13, ss.406-413, 2004 (SCI İndekslerine Giren Dergi)

- **Theory and experiments of angular vertical comb-drive actuators for scanning micromirrors**

Hah D., Patterson P., Nguyen H., Toshiyoshi H., Wu M.

IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS, cilt.10, ss.505-513, 2004 (SCI İndekslerine Giren Dergi)

- **Low-voltage, large-scan angle MEMS analog micromirror arrays with hidden vertical comb-drive actuators**

Hah D., Huang S., Tsai J., Toshiyoshi H., Wu M.

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- **Open-loop operation of MEMS-based 1 X N wavelength-selective switch with long-term stability and repeatability**

Tsai J., Huang S., Hah D., Toshiyoshi H., Wu M.

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- **A low voltage actuated microelectromechanical switch for RF application**

Hah D., Yoon E., Hong S.

JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS SHORT NOTES & REVIEW PAPERS, cilt.40, ss.2721-2724, 2001 (SCI İndekslerine Giren Dergi)

- **A low-voltage actuated micromachined microwave switch using torsion springs and leverage**

Hah D., Yoon E., Hong S.

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- **An optomechanical pressure sensor using multimode interference couplers with polymer waveguides on a thin p(+)-Si membrane**

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SENSORS AND ACTUATORS A-PHYSICAL, cilt.79, ss.204-210, 2000 (SCI İndekslerine Giren Dergi)

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- **Planar MEMS Variable Optical Attenuators (VOAs) with Linear Attenuation-Voltage Characteristics**  
 HAH D.  
 2019 Symposium on Design, Test, Integration and Packaging of MEMS and MOEMS, DTIP 2019, Paris, Fransa, 12 - 15 May 2019
- **Analytical design of linear variable capacitors with shaped-finger comb-drive actuators**  
 HAH D.  
 20th Symposium on Design, Test, Integration and Packaging of MEMS and MOEMS, DTIP 2018, Roma, İtalya, 22 - 25 May 2018, ss.1-5
- **Design of capacitive micromachined ultrasonic transducers (CMUTs) on a flexible substrate for intravascular ultrasonography (IVUS) applications**  
 HAH D., Je C. H. , Lee S.  
 19th Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, DTIP 2017, Bordeaux, Fransa, 29 May - 01 June 2017
- **An FEM study of die attach packaging effect on nanomechanical Si optical filters**  
 Seok S., HAH D.  
 19th Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, DTIP 2017, Bordeaux, Fransa, 29 May - 01 June 2017
- **Design of wide-band tunable optical filters with cascaded microring resonators and shaped-finger comb-drive actuators**  
 HAH D.  
 18th Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, DTIP 2016, Budapest, Macaristan, 30 May - 02 June 2016
- **Design of mechanically tunable optical filters with microring resonators**  
 HAH D., Bordelon J.  
 17th Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, DTIP 2015, Montpellier, Fransa, 27 - 30 April 2015
- **Performance improvement of a two-axis radial-vertical-combdrive scanner by using a symmetric spring design**  
 Hsieh T., Chang Y., Chiou S., Tsai J., HAH D., Wu M. C.  
 International Conference on Optical MEMS and Nanophotonics, Freiburg, Almanya, 11 - 14 August 2008, ss.108-109
- **two-axis MEMS scanner driven by radial vertical combdrive actuators**  
 Chiou S., Hsieh T., Tsai J., Sun C., HAH D., Wu M. C.  
 International Conference on Optical MEMS and Nanophotonics, Hualien, Tayvan, 12 - 16 August 2007, ss.83-84
- **Silicon-based on-chip micromirrors for DWDM wavelength-selective crossconnects**  
 Chi C., Hou C., Lee C., HAH D., Wu M. C.  
 International Conference on Optical MEMS and Their Applications, Big Sky, Amerika Birleşik Devletleri, 21 - 24 August 2006, ss.130-131
- **Silicon-based monolithic 4x4 wavelength-selective cross connect with on-chip micromirrors**  
 Chi C., Tsai J., HAH D., Mathai S., Lee M., Wu M. C.  
 OFC/NFOEC 2006, Anaheim, Amerika Birleşik Devletleri, 5 - 10 March 2006, ss.1-3
- **Solid-immersion micromirror with enhanced angular deflection for silicon based planar lightwave circuits**  
 Chi C., Tsai J., HAH D., Jeong K., Wu M. C.  
 International Conference on Optical MEMS and Their Applications, Oulu, Finlandiya, 1 - 04 August 2005, ss.131-132
- **Integrated 1x4 wavelength-selective switch with on-chip MEMS micromirrors**  
 Chi C., Tsai J., Lee M., HAH D., Wu M. C.  
 CLEO/QELS 2005, Baltimore, Amerika Birleşik Devletleri, 22 - 27 May 2005, ss.1732-1734
- **Scanning micromirrors: an overview**  
 Patterson P., HAH D., Fujino M., Piyawattanametha W., Wu M. C.  
 SPIE, Optomechatronic Micro/Nano Components, Devices, and Systems, Philadelphia, Amerika Birleşik Devletleri, 25 October 2004, cilt.5604, ss.196-207
- **A large port-count 1x32 wavelength-selective switch using a large scan-angle, high fill-factor, two-axis**

## **analog micromirror array**

Tsai J., Fan L., Chi C., HAH D., Wu M. C.

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- **A high fill-factor, large scan-angle, two-axis analog micromirror array driven by leverage mechanism**

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International Conference on Optical MEMS and Their Applications, Takamatsu, Japonya, 22 - 26 August 2004, ss.30-31

- **A self-aligned vertical comb-drive actuator using surface micromachining for scanning micromirrors**

HAH D., Choi C., Jun C., Kim Y.

International Conference on Optical MEMS and Their Applications, 18 - 21 August 2003, ss.151-152

- **A 2D scanner by surface and bulk micromachined angular vertical comb actuators**

Piyawattanametha W., Patterson P., HAH D., Toshiyoshi H., Wu M. C.

International Conference on Optical MEMS and Their Applications, 18 - 21 August 2003, ss.93-94

- **1xN2 wavelength-selective switch with telescope-magnified 2D input/output fiber collimator array**

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International Conference on Optical MEMS and Their Applications, 18 - 21 August 2003, ss.45-46

- **Analog micromirror arrays with orthogonal scanning directions for wavelength selective 1xN2 switches**

Tsai J., Huang S., HAH D., Wu M. C.

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- **Wavelength-selective 1xN2 switches with two-dimensional input/output fiber arrays**

Tsai J., Huang S., HAH D., Wu M. C.

CLEO 2003, Baltimore, Amerika Birleşik Devletleri, 1 - 06 June 2003, ss.772-774

- **A surface and bulk micromachined angular vertical combdrive for scanning micromirrors**

Piyawattanametha W., Patterson P., HAH D., Toshiyoshi H., Wu M. C.

OFC 2003, Atlanta, Amerika Birleşik Devletleri, 23 - 28 March 2003, ss.251-252

- **MOEM scanners for optical networks**

HAH D., Choi C., Jun C., Kim Y., Patterson P., Toshiyoshi H., Wu M. C.

The 9th KIEE MEMS symposium, Seoul, Güney Kore, 06 February 2003, ss.13-19

- **Nano-electro-mechanical photonic crystal switches**

Lee M., HAH D., Lau E., Toshiyoshi H., Wu M. C.

6th International Symposium on Contemporary Photonics Technology (CPT 2003), Tokyo, Japonya, 15 - 17 January 2003, ss.135-138

- **MEMS WDM routers using analog micromirror arrays**

Wu M. C. , Tsai J., Huang S., HAH D.

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- **Open-loop operation of MEMS WDM routers with analog micromirror array**

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- **MEMS photonic devices and their applications**

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7th Optoelectronics and communications conference (OECC 2002), Yokohama, Japonya, 8 - 12 July 2002, ss.38-39

- **Recent advances in optical MEMS devices and systems**

Patterson P., HAH D., Lee M., Tsai J., Wu M. C.

International Symposium on Optical Science and Technology, SPIE's 47th Annual Meeting, Seattle, Amerika Birleşik Devletleri, 7 - 11 July 2002, ss.1-8

- **Advanced MEMS for photonics**

Wu M. C. , Patterson P., HAH D., Lee M., Huang S., Tsai J.

60th Annual Device Research Conference, Santa Barbara, Amerika Birleşik Devletleri, 24 - 26 June 2002, ss.13-16

- **A novel tunable MEMS capacitor based on angled vertical comb drive actuators**

Nguyen H., HAH D., Patterson P., Chao R., Piyawattanametha W., Wu M. C.

Hilton Head 2002 Solid-State Sensor & Actuator Workshop, Hilton Head Island, Amerika Birleşik Devletleri, 3 - 06 June 2002, ss.277-280

- **Low voltage MEMS micromirror arrays with hidden vertical comb-drive actuators**  
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- **MOEMS electrostatic scanning micromirrors design and fabrication**  
Patterson P., HAH D., Toshiyoshi H., Wu M. C.  
201st Meeting of the Electrochemical Society – 1st International Symposium on Integrated Optoelectronics, Philadelphia, Amerika Birleşik Devletleri, 12 - 17 May 2002, ss.369-380
- **Design of electrostatic actuators for MOEMS applications**  
HAH D., Toshiyoshi H., Wu M. C.  
Symposium on Design, Test, Integration and Packaging for MEMS/MOEMS, Cannes, Fransa, 6 - 08 May 2002, ss.200-207
- **A low voltage, large scan angle MEMS micromirror array with hidden vertical comb-drive actuators for WDM routers**  
HAH D., Huang S., Nguyen H., Chang H., Toshiyoshi H., Wu M. C.  
OFC 2002, Anaheim, Amerika Birleşik Devletleri, 17 - 22 March 2002, ss.92-93
- **Microelectromechanical scanning devices for optical networking applications**  
Wu M. C. , HAH D., Patterson P., Toshiyoshi H.  
ISSCC 2002, San Francisco, Amerika Birleşik Devletleri, 4 - 06 February 2002, ss.358-359
- **A scanning micromirror with angular comb drive actuation**  
Patterson P., HAH D., Nguyen H., Toshiyoshi H., Chao R., Wu M. C.  
15th IEEE Micro Electro Mechanical Systems Conference, Las Vegas, Amerika Birleşik Devletleri, 20 - 24 January 2002, ss.544-547
- **Integration of a honeycomb micromirror with a surface micromachined 2D scanner for improved performance**  
Patterson P., Su G., HAH D., Wu M. C.  
AVS 48th International Symposium, San Francisco, Amerika Birleşik Devletleri, 29 October - 02 November 2001, ss.1
- **An angular vertical comb drive actuator for scanning micromirrors**  
Patterson P., HAH D., Chang H., Toshiyoshi H., Wu M. C.  
International Conference on Optical MEMS and Their Applications, Okinawa, Japonya, 25 - 28 September 2001, ss.25-26
- **Low voltage actuated RF MEMS switches using push-pull operation**  
HAH D., Yoon E., Hong S.  
International Conference on Solid State Devices and Materials, Sendai, Japonya, 28 - 31 August 2000, ss.392-393
- **Surface micromachined microwave switch with push-pull configuration**  
HAH D., Yoon E., Hong S.  
The 2nd Korean MEMS Conference, Daejeon, Güney Kore, 07 April 2000, ss.263-268
- **Optomechanical pressure sensors using multi-mode interference couplers on thin p+-Si membranes**  
HAH D., Yoon E., Hong S.  
The 6th Korean Conference on Semiconductor, Seoul, Güney Kore, 01 February 1999, ss.175-176
- **Optical coupler sensor with movable waveguide**  
HAH D., Hong S., Kwon Y.  
The 3rd Korean Conference on Semiconductor, Jeongju, Güney Kore, 5 - 06 February 1996, ss.457-458

## Desteklenen Projeler

HAH D., Yükseköğretim Kurumları Destekli Proje, Theoretical study on optical filters with nanoelectromechanical tuning, 2016 - 2018

HAH D., Desteklenmiş Diğer Projeler, Optical probe for microscopic cancer identification in minute structures, 2009 - 2013

HAH D., Desteklenmiş Diğer Projeler, Carbon nanotube reinforced metal matrix composites for microelectromechanical systems (MEMS) applications, 2011 - 2012

HAH D., Desteklenmiş Diğer Projeler, Compact MEMS-based optical probe modules for optical coherence tomography (OCT) application, 2006 - 2011

HAH D., Desteklenmiş Diğer Projeler, Room temperature deposition of carbon nanotube film, 2010 - 2010

HAH D., Desteklenmiş Diğer Projeler, Micro glow discharge devices, 2009 - 2010

HAH D., Desteklenmiş Diğer Projeler, Enhancement of nanoscale surface characterization capabilities for multi-disciplinary researches, 2007 - 2010

HAH D., Desteklenmiş Diğer Projeler, Combined soil moisture meter and dynamic cone penetrometer (DCP), 2007 - 2008

HAH D., Desteklenmiş Diğer Projeler, Low-voltage, laterally-driven RF microelectromechanical (MEM) switches fabricated by single-mask process, 2006 - 2007

## **Atıflar**

Toplam Atf Sayısı (WOS):645

h-indeksi (WOS):12