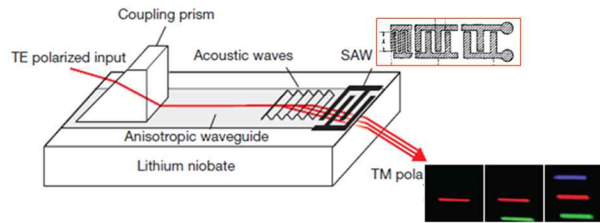


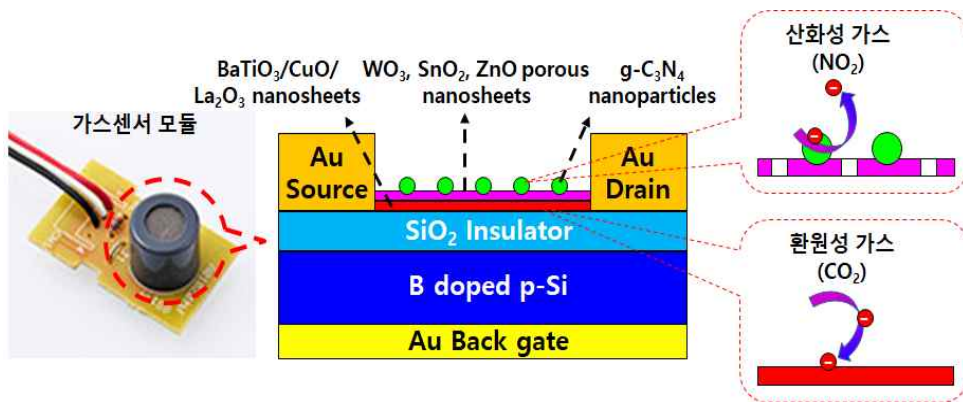
나노 및 마이크로시스템 연구실

1. 지도교수: 이기근 (원301-2호, 이메일: keekeun@ajou.ac.kr, 전화: 1848)

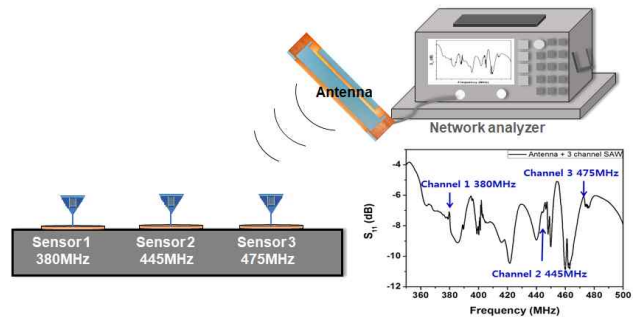
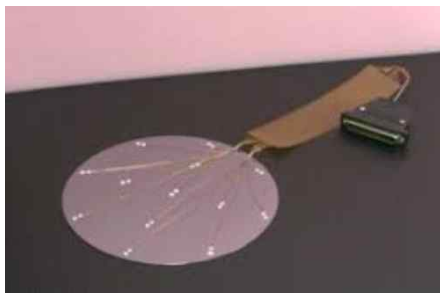
2. 연구분야: MEMS, 센서, Surface Acoustic Wave(SAW) 기반 소자 및 응용



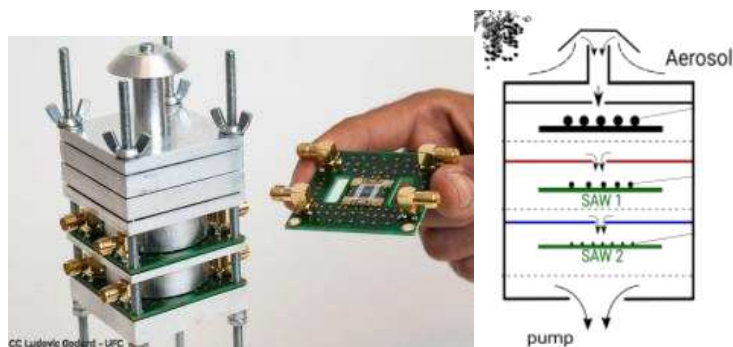
〈3D 홀로그램 디스플레이 개발, 한국연구재단 지원과제〉



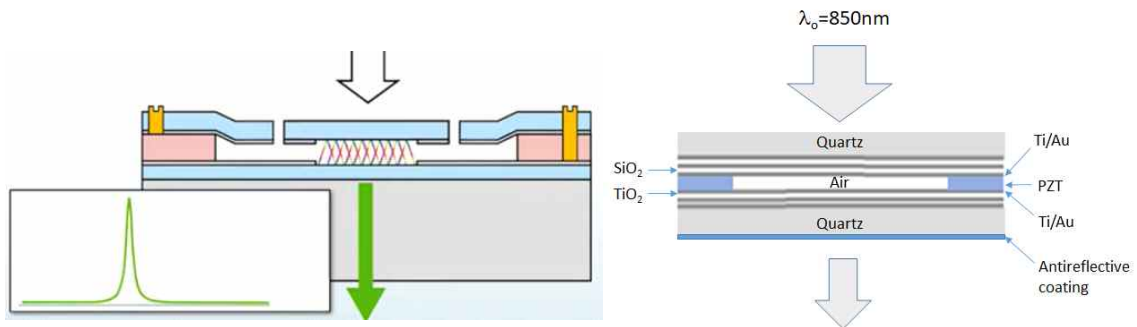
〈FET 기반의 듀얼 가스센서 개발, 중기청 지원과제〉



〈플라즈마 챔버내 웨이퍼 온도센서 및 무선 인터페이스 개발, 한국연구재단 지원과제〉



〈휴대용 SAW기반 초미세먼지센서 및 인터페이스회로 개발, 삼성전자 지원과제〉



〈3D 이미지 센서 필터 개발, 중기청 시장대응형 지원과제〉

3. 학력 및 경력

- Ph.D 1996~2000.08 Arizona State University, Electronics, USA
- M.S. 1993~1995 University of Florida, Electronics, USA
- Professor, 2004.09~present, 아주대학교 전자공학과
- Research Professor, 2003~2004.08 Arizona State University, USA
- Post doc., 2000.12~2002.12 Arizona State University, USA

4. Professional activities and honors

- Associate Editor: Journal of Electrical Engineering & Technology (JEET, 2018~)
- Guest Editor: Sensors, "Surface Acoustic Wave Sensors", (2018~)
- 대한전기학회 융합MEMS위원회 위원장 (2017.09~2019.09)
- 융합MEMS심포지움 준비위원장 (2019.09)
- 대한전기학회 C부문회 총무이사 (2015.01~2018.12)
- SPIE Photonics West TCP (2014~)
- MNC TCP (2014~)
- Best Associate Editor in JEET (Journal of Electrical Engineering & Technology), 2020
- Outstanding reviewer in Sensors and Actuators A (2018, 2019)
- Outstanding reviewer in Sensors and Actuators B (2018, 2019)
- 교육 최우수상: 아주대학교 교육 최우수상 (2014)
- 연구 우수상: 아주대학교 "Ajou Publication Award" (2014)
- 공로상: 아주대학교 정보통신대학 "올해의 공로상" (2013)

5. 논문 · 특허 (최근 3년간 15편)

- Keekeun Lee, "Highly sensitive and stable rGO:MoS₂-based chemiresistive humidity sensor directly insertable to transformer insulating oil analyzed by customized electric sensor interface", ACS Sensors, Vol. 6, No. 3, pp. 1012, 2021 (SCI impact factor: 7.3, **JCR 상위 2.9% 논문지**)
- Keekeun Lee, "MEMS hydrogen gas sensor for in-situ monitoring of hydrogen gas in transformer oil", Sensors and Actuators B: Chemical, Vol. 326, pp. 128989, 2020 (SCI impact factor: 7.1, **JCR 상위 2.344% 논문지**)
- Md Adib Ridwan, Vijay Kondalkar, Keekeun Lee, "Development of Highly Sensitive Ethane Gas Sensor Based on 3D WO₃ Nanocone Structure Integrated with Low-Powered In-Plane Microheater

and Temperature Sensor” , Advanced Materials Technologies, Vol. 5, No. 5, pp. 2000009, May 2020 (SCI impact factor: 5.969)

- Y. Lee and Keekeun Lee, “Effective light beam modulation by chirp IDT on a suspended LiNbO₃ membrane for 3D holographic displays” , Sensors, Vol. 20, No. 4, p. 1218, Feb. 23, 2020 (SCI impact factor: 3.275)
- Vijay Kondalkar, Le Thai Duy, Hyungtak Lee, and Keekeun Lee, “Nanohybrids of Pt-functionalized Al₂O₃/ZnO core-shell nanorods for high-performance MEMS-based acetylene gas sensor” , ACS Applied Materials and Interfaces, Vol. 11, No. 29, pp. 25891–25900, July 2019 (SCI impact factor: 8.758, **JCR 상위 8.5% 논문지**)
- Sihyeok Kim, Md Ridwan Adib, and Keekeun Lee, “Development of chipless and wireless underground temperature sensor system based on magnetic antennas and SAW sensor” , Sensors and Actuators A: Physical, Vol. 297, p. 111549, Oct. 2019 (SCI impact factor: 2.906)
- Vijay Kondalkar, Geonhee Ryu, Youngbum Lee, and Keekeun Lee, “Development of highly sensitive and stable humidity sensor for real-time monitoring of dissolved moisture in transformer-insulating oil” , Sensors and Actuators B: Chemical, Vol. 286, No. 1, pp. 377–385, 2019 (SCI impact factor: 7.11, **JCR 상위 2.344% 논문지**)
- Vijay Kondalkar, Xiang Li, I. Park, Sangsik Yang, and Keekeun Lee, “Development of chipless, wireless current sensor system based on giant magnetoimpedance magnetic sensor and surface acoustic wave transponder” , Scientific Reports, Vol. 8, 2401, Feb. 5, 2018 (SCI impact factor: 4.259)
- Vijay Kondalkar, Xiang Li, Sangsik Yang, and Keekeun Lee, “Highly efficient current sensor built on a chip based on nanocrystalline NiFe/Cu/NiFe thin film” , Journal of Industrial and Engineering Chemistry, Vol. 53, No. 1, pp. 416–424, Sept. 25, 2017 (SCI impact factor: 5.278)
- Vijay V. Kondalkar, Sangsik Yang, P. Patil, Sipra, P. Bhosale, Keekeun Lee, Langmuir-Blodgett assembly of nanometric WO₃ thin film for electrochromic performance: A new way” , Materials Letters, Vol. 194, No. 1, pp. 102–106, May 2017 (SCI impact factor: 3.204)

6. 현재진행과제 (on-going projects)

- **미세먼지센서** 및 센서인터페이스 개발 (삼성전자지원과제)
- **플라즈마 챔버내 웨이퍼 온도감지**를 위한 표면탄성파(SAW)기반의 초고온 무선 센서시스템 개발 (연구재단지원과제)
- **변압기 절연유내 직접 삼입형 7종 가스센서** (수소, 메탄, 에탄, 아세틸렌, 에틸렌 등) 및 측정시스템 개발 (에너지기술평가원지원과제)
- SAW 기반 휴대용 **홀로그램 디스플레이** 개발 (한국연구재단지원과제)
- **FET (field effect transistor)** 기반 가스센서 개발 (중기청지원과제)
- 3D 구조의 FPI(febrly perrot interferometer)을 이용한 **이미지센서** 감도 향상 기술 개발 (제이앤씨지원과제)
- 전력 IoT 응용을 위한 **에너지 하베스터 및 코로나센서** 개발 (한국전력지원과제)

7. 연구실 현황

■ 현 대학원생

- Reddy(postdoc., 2021.02~)
- 김시혁(박사과정, 2019.09~)
- Adib(박사과정, 2018.09~)
- Munir(석사과정, 2021.08~)
- 문지윤(인턴, 2020.11~)
- 정세윤(인턴, 2020.11~)

- 한현우(인턴, 2021.01~)
- 방희원(인턴, 2021.01~)

■ 졸업생

- 박지훈 (석사, 2020.08, 산업체 병역특례 취업)
- Vijay (postdoc., 2015.12~2019.05, Leibniz Institute, Germany, Research Fellow)
- 이문환 (석사, 2018.08, (주)KEC)
- 이영옥 (석사, 2017.02, (주)와이슬)
- 최현수 (석사, 2016.08, (주)와이슬)
- Fu Chen (postdoc., ~2014.11, Professor in China)
- Wang Wen (postdoc., Professor in China)
- 오해관 (박사, 2015, ㈜와이슬)
- 남민우 (박사, 2014.07, 상지대학교 교수)
- 정인기 (석사, 2014.07, 기계연구원)
- 임천배 (석사, 2009.02, LG전자)
- 등 다수 배출

8. 특혜

- 매월 생활비 지급
- 매학기 등록금 전액 지급
- 개인용 컴퓨터 지급
- 국내외 학술대회 참가비용 전액 지급