

Device Research Laboratory

Prof. Hyungcheol Shin

Main Research

- NAND Flash Memory
- Machine Learning

Biography

1985 - Electronics Eng., SNU, B.S.
1987 - Electronics Eng., SNU, M.S.
1993 - Electrical Eng., UC Berkeley, Ph.D.
1994 ~ 1996 - Senior Device Engineer, Motorola
1996 ~ 2003 - Associate Professor, EECS, KAIST
2001 ~ 2002 - Staff Scientist, Qualcomm, CA
2003 ~ - Professor, School of EECS, SNU
2010 ~ 2013 - 반도체공동연구소 소장
2010 ~ - 서울대-삼성전자 반도체특별교육 프로그램(SSSP) 위원장
2019, 2021 - Consulting Professor, SK hynix

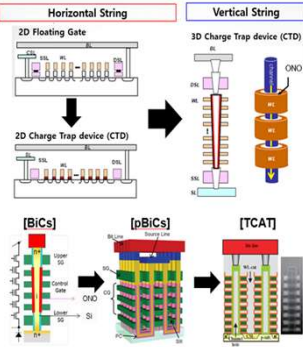
Contact Information

Laboratory : 301 동 1017 호
(Tel : 02-880-8647)

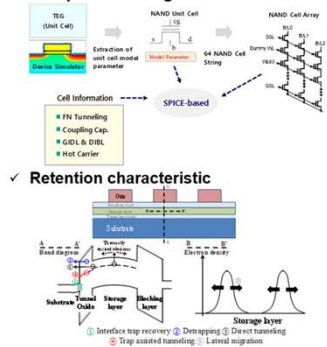
Chief student : Jangkyu Lee

NAND Flash Memory

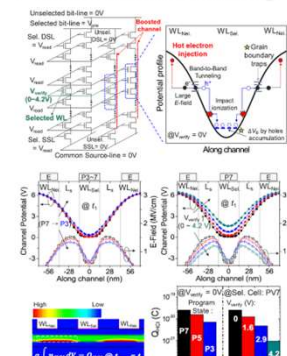
✓ Structure



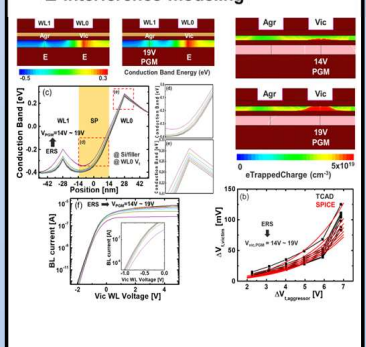
✓ Compact Modeling



✓ Read Disturbance modeling

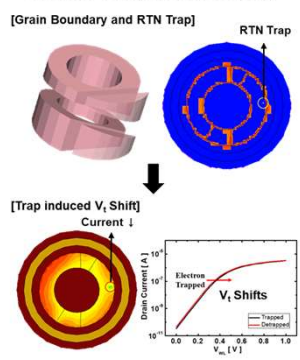


✓ Z-Interference modeling

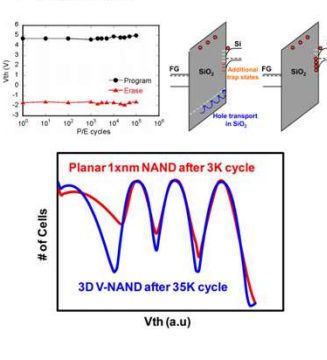


NAND Flash Memory

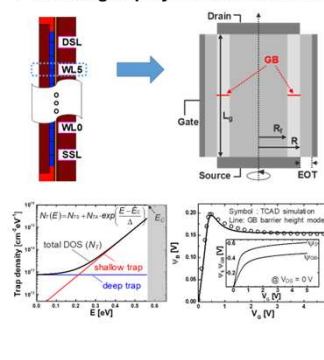
✓ Random Telegraph Noise (RTN)



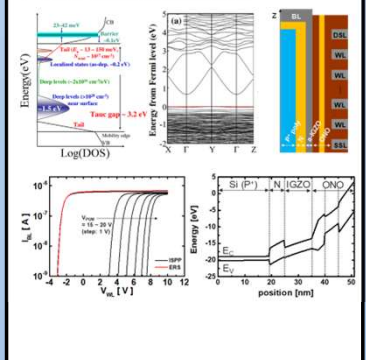
✓ Endurance



✓ Modeling of poly-Si characteristics

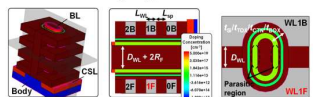


✓ New channel material

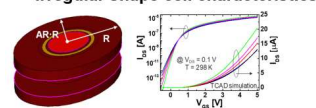


NAND Flash Memory

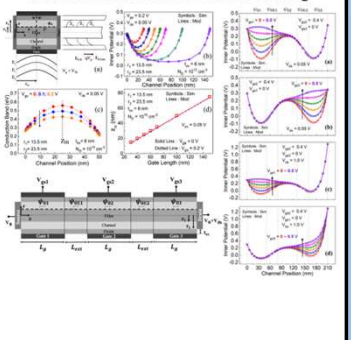
✓ Future 3-D Split-gate NAND Flash



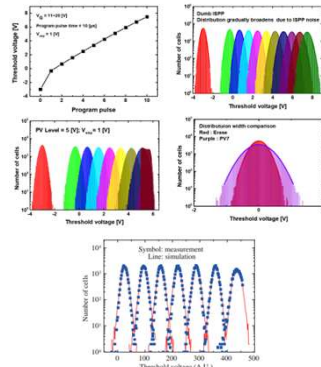
✓ Irregular shape cell characteristics



✓ Macaroni Channel MOSFET modeling



✓ V_{th} distribution with Monte-Carlo Simulation



Machine Learning

✓ Neural network-based machine learning

