

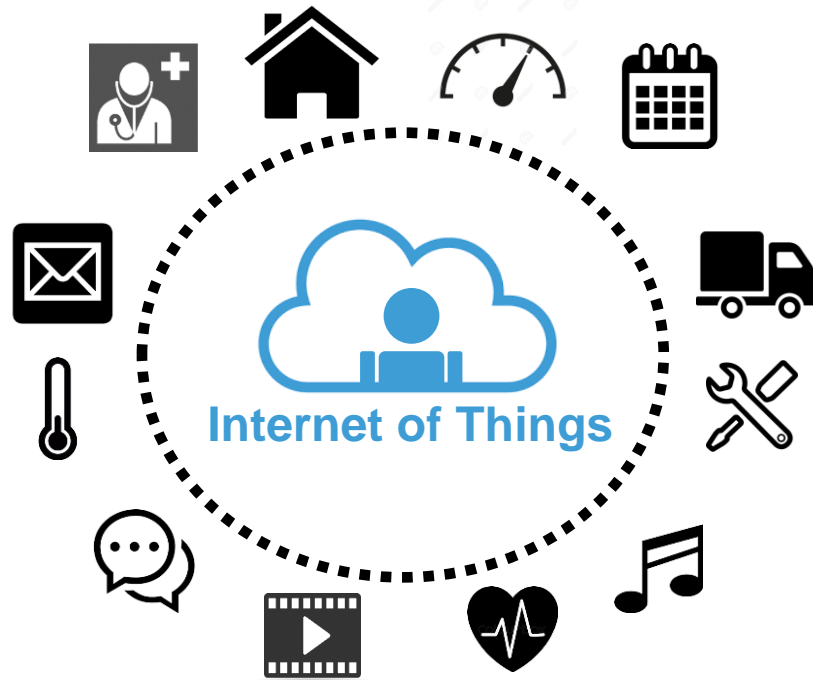
Photo-Triggered Facile Degradation of Non-volatile Memory for Information Security Application

School of Chemical and Biological Engineering
Seoul National University
Institute for Basic Science

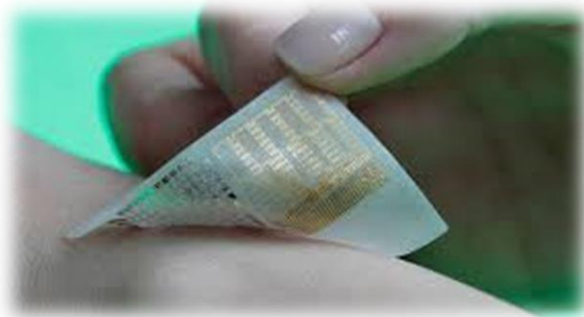
Jongha LEE
(Prof. Dae-Hyeong Kim)



Information Security of Personal Devices



Nat. Nanotech., 11, 566 (2016)



Nat. Nanotech., 9, 397-404 (2014)

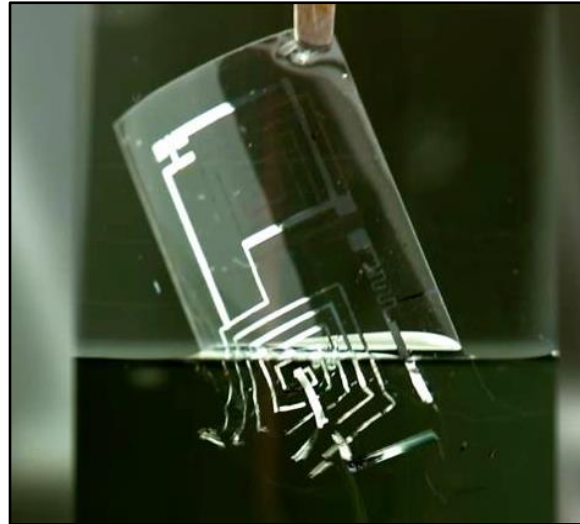
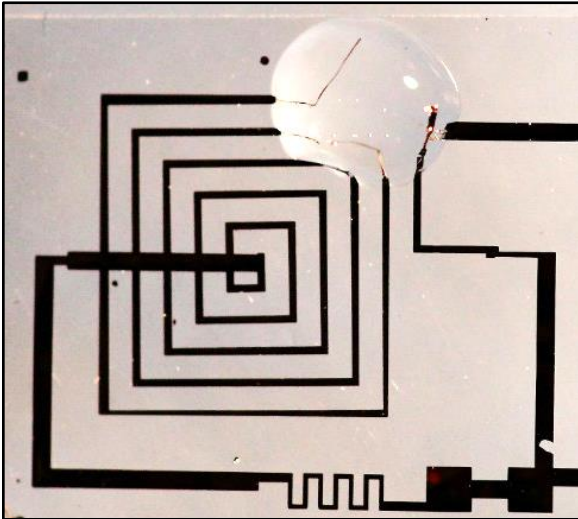


► A physically destructible memory is necessary

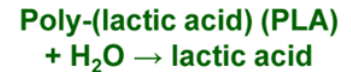
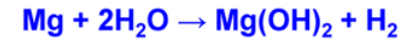
Transient Electronics for Security Applications



► Transient electronics: A physically destructible electronics



Bioresorbable components



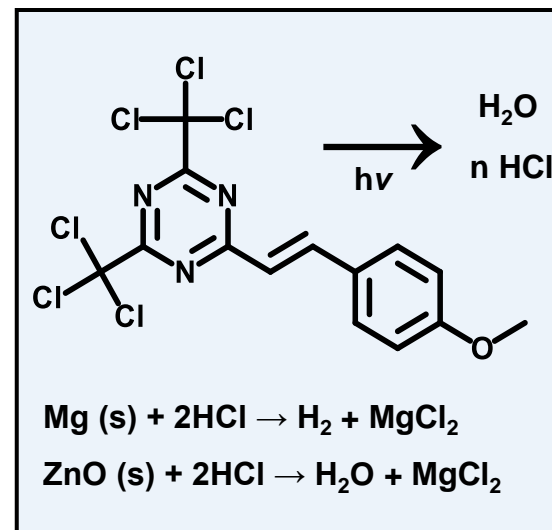
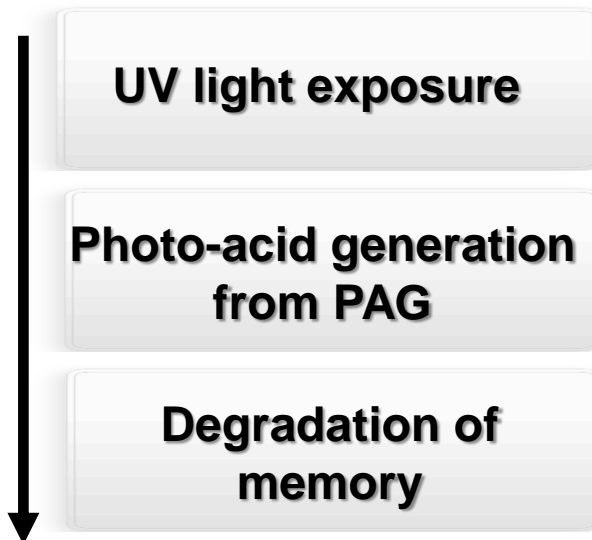
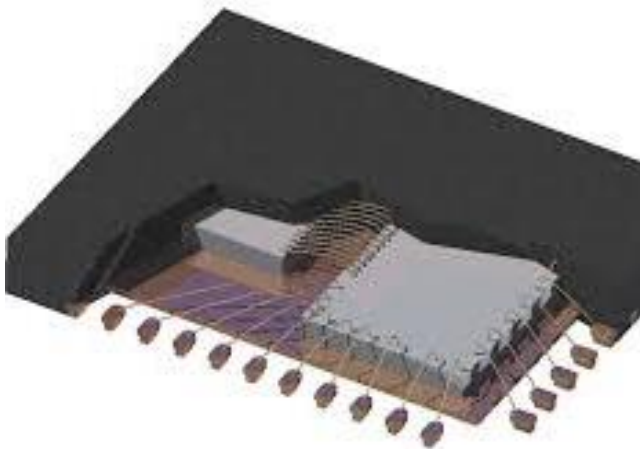
W, Mo, Fe

► Water-soluble non-volatile memory

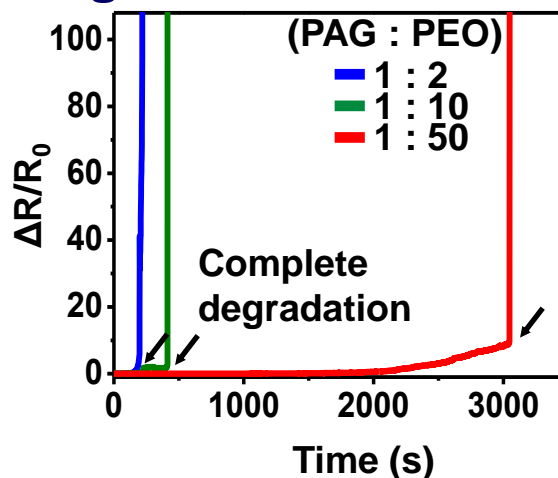
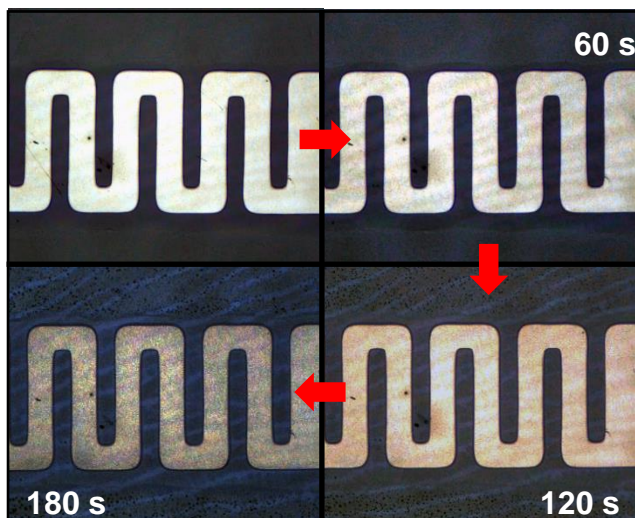
UV-triggered destruction of electronics

► Photo-acid generating encapsulation technology

Packaging: Protect Memory function

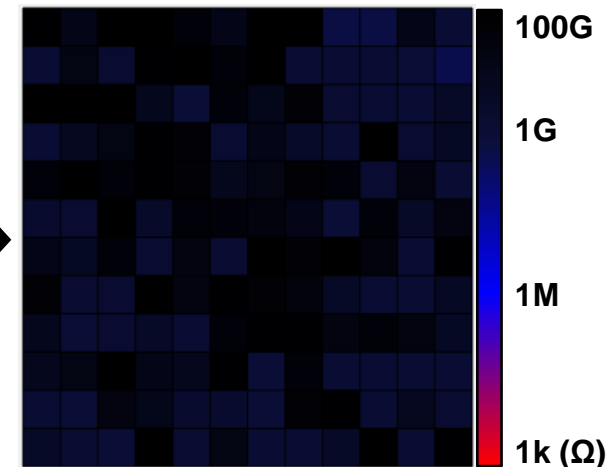
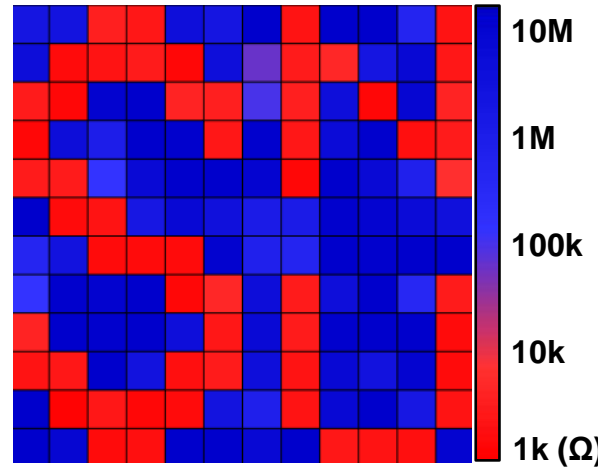
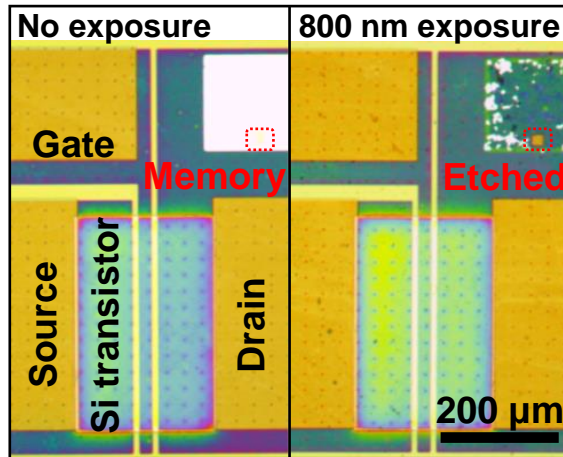
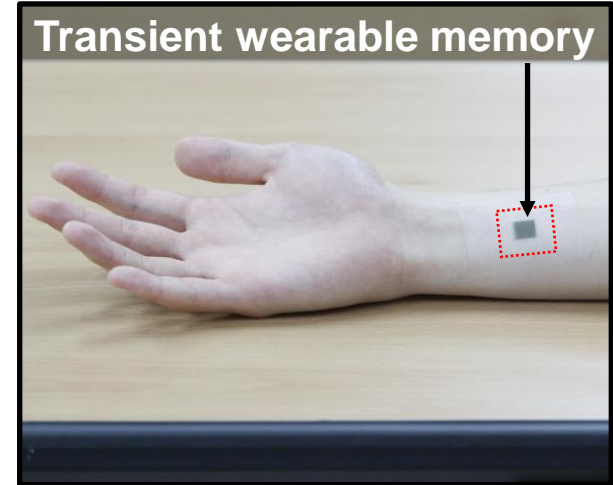
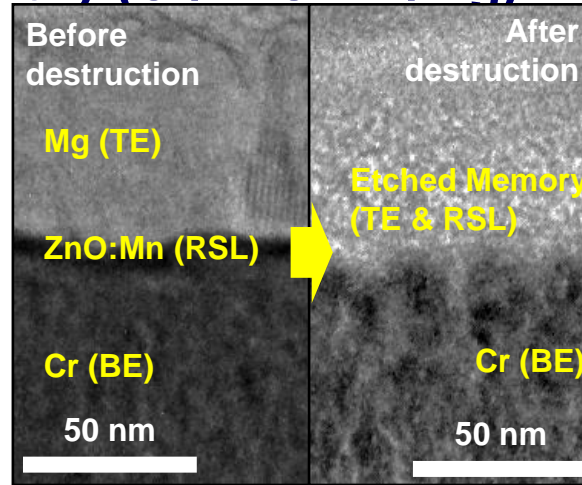
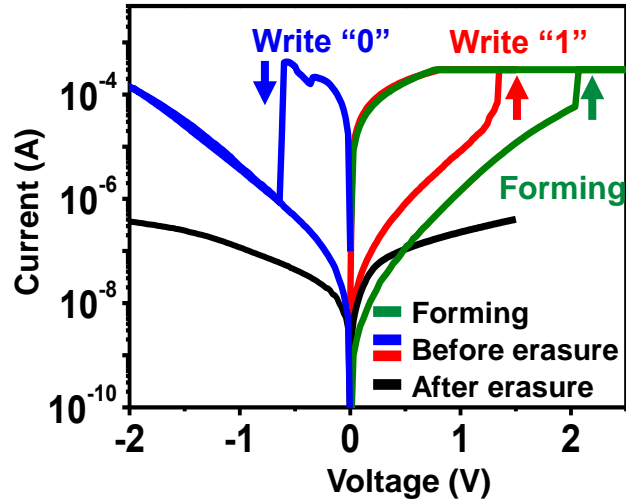


► Destruction under the UV light



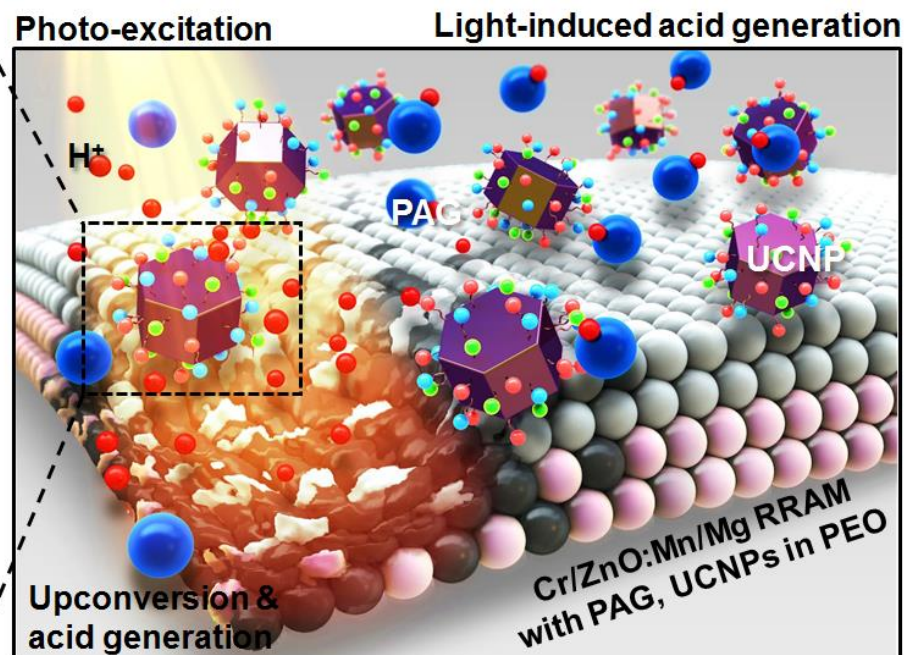
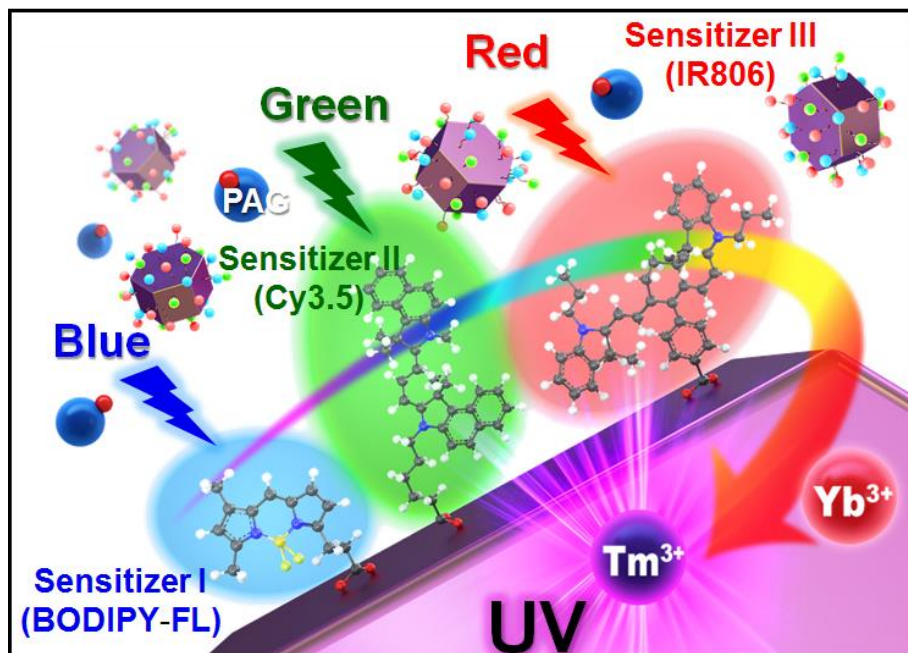
Water-soluble resistive memory

▶ Ultrathin resistive memory (Cr/ZnO:Mn/Mg)



Light-triggered Destruction of Memory

- ▶ Upconverting nanoparticles for NIR, visible light



- ▶ Information Security Memory
- ▶ Military Applications

Thank You