



UNIVERSITY
OF OSLO



Neuromorphic Electronics

Analog Storage

Philip Häfliger

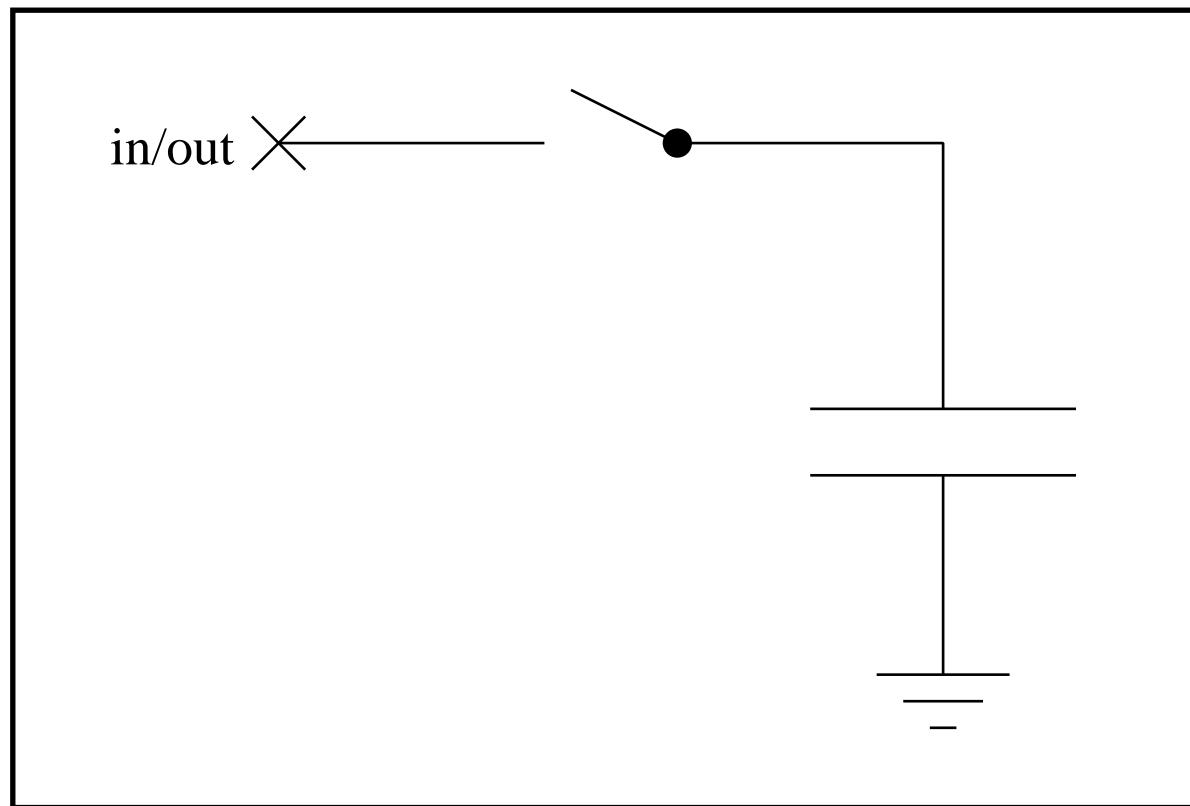
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- volatile short term storage
 - capacitive storage/dynamic storage
- volatile long term storage
 - digital storage and DAC
 - capacitive storage with refresh
 - multi level flipflops
- non-volatile storage
 - floating gates, analog flash ROM

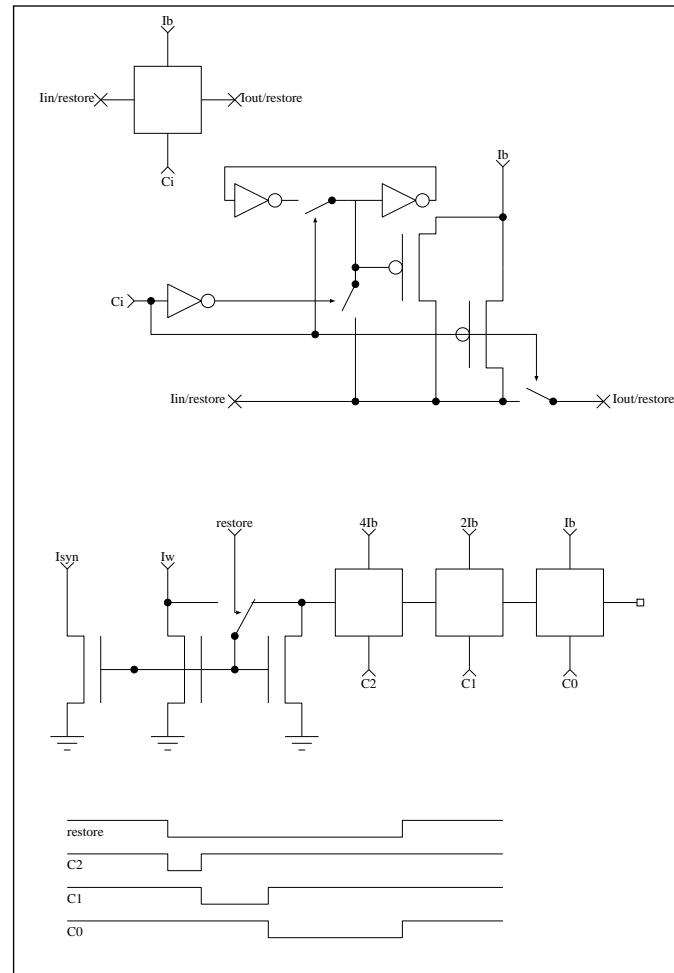


Capacitive Storage



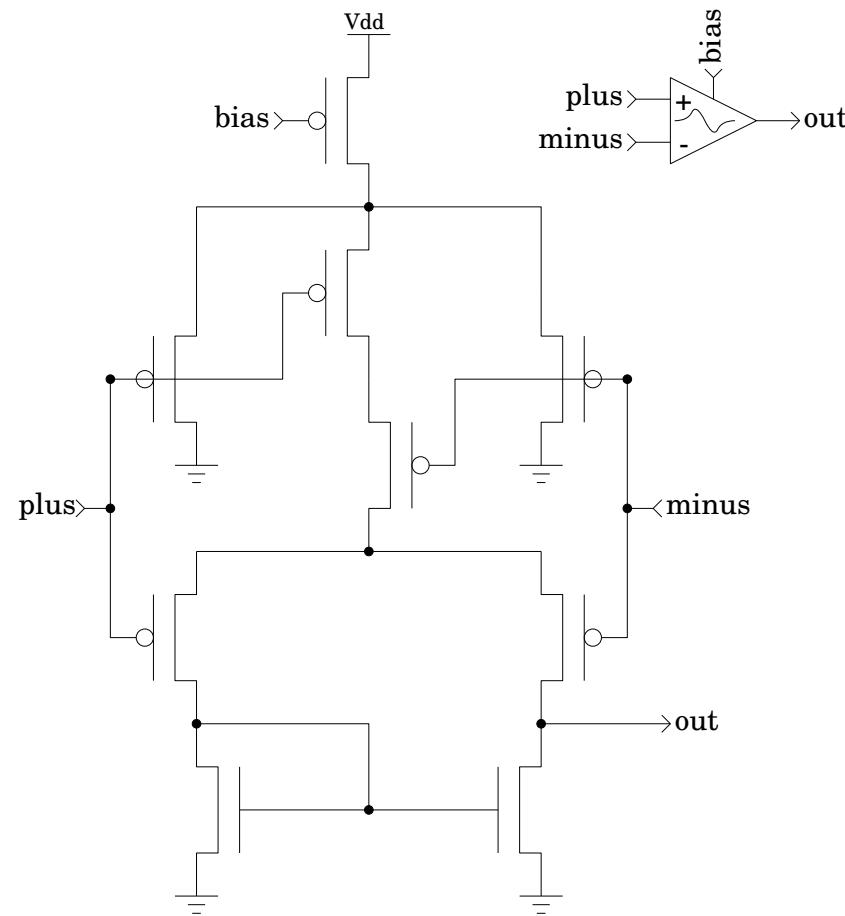


AD/DA Multi-Level Storage



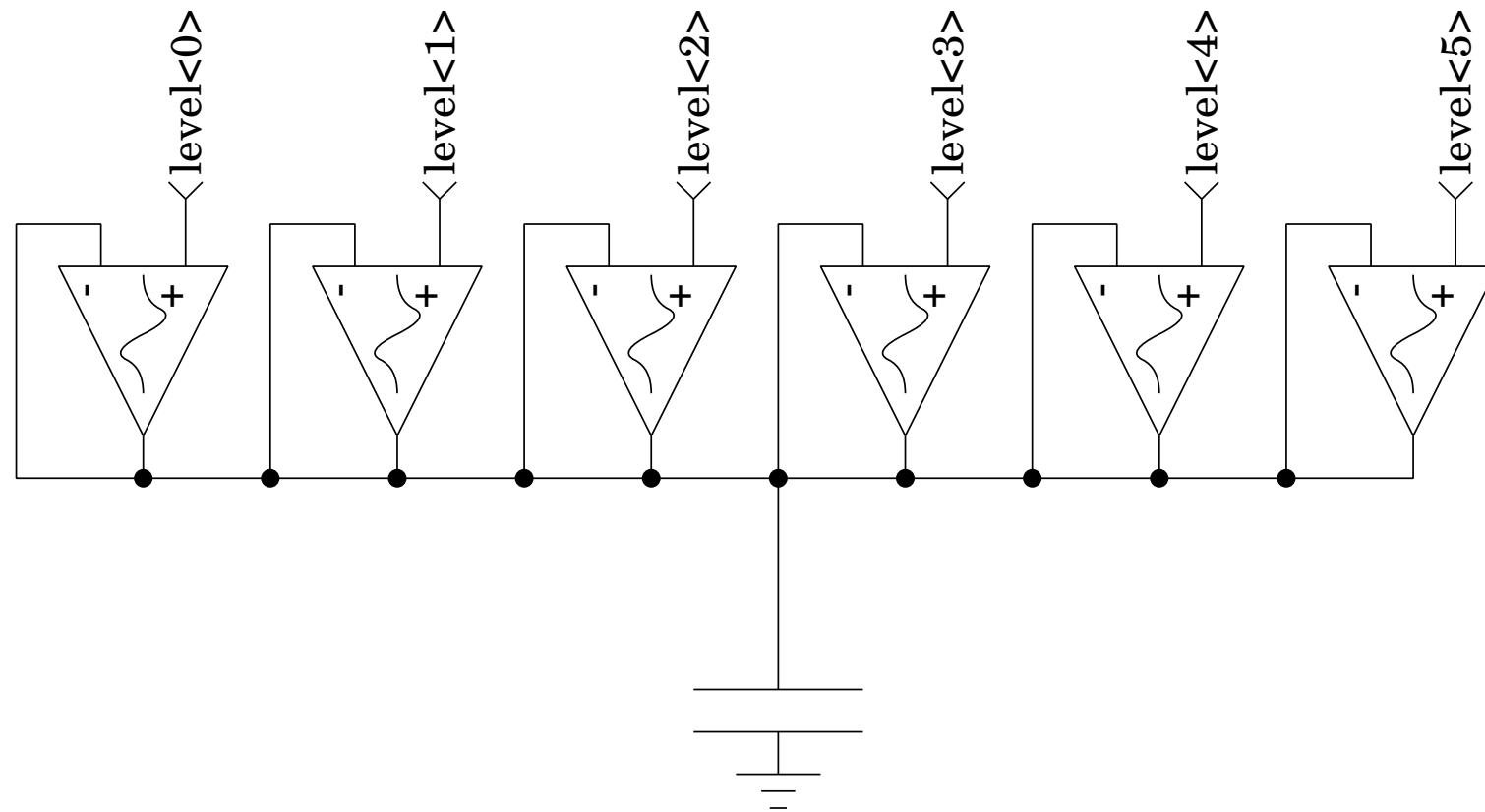


Real Multi-Level Storage (1/2)



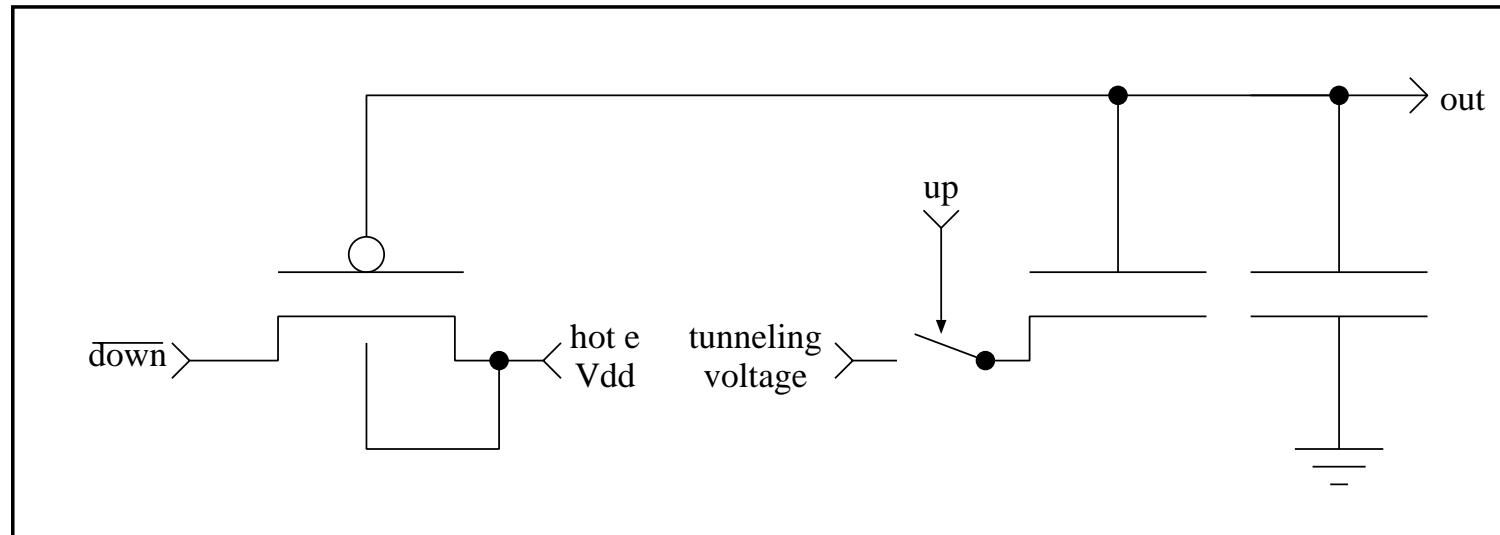


Real Multi-Level Storage (2/2)



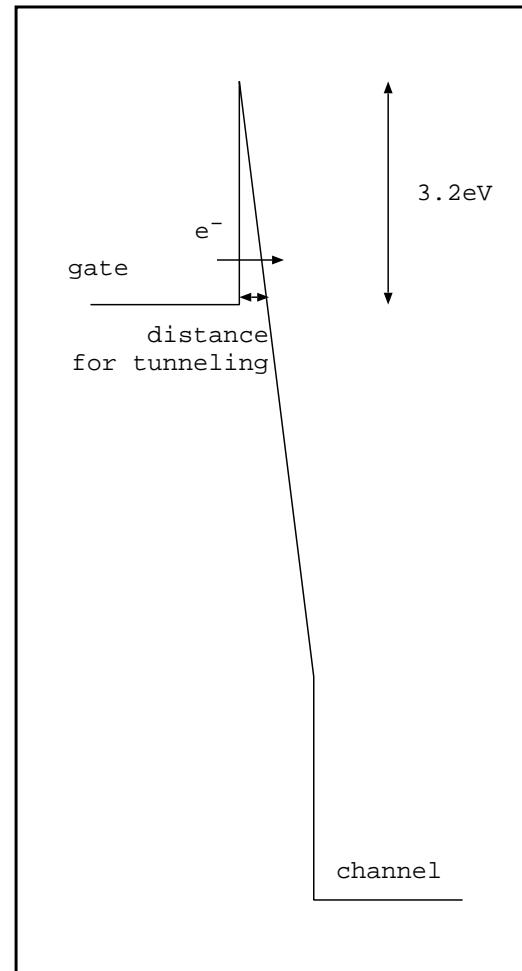


Non-Volatile Analog Storage on Floating Gates



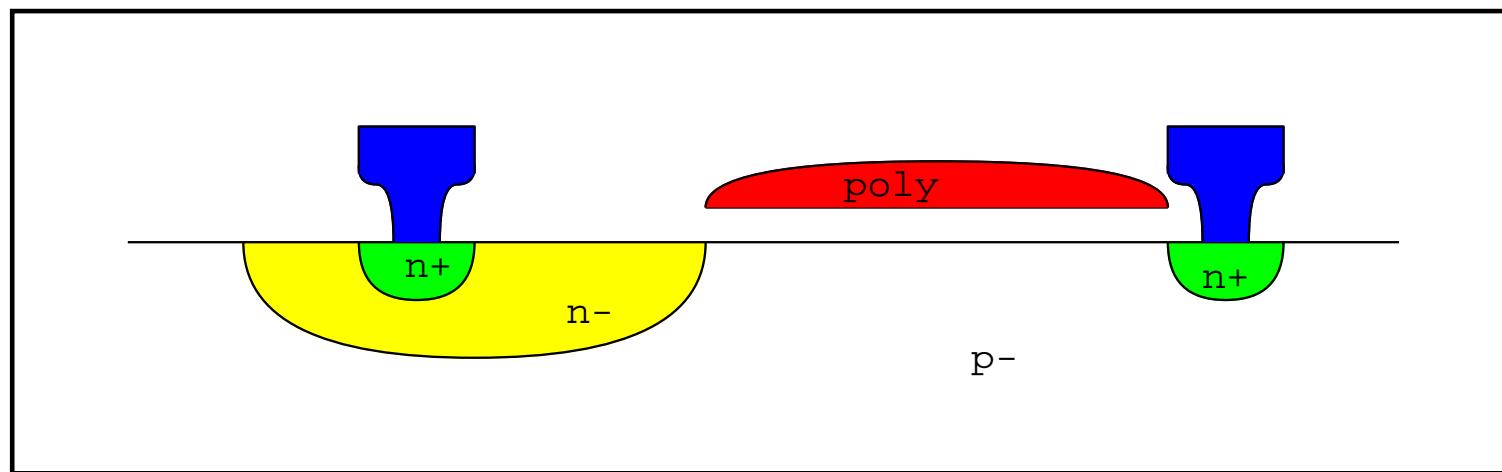


Tunneling Band Diagram





High Voltage NFET





High Voltage Switch

