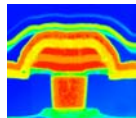


## ■ Equipe Mémoires

Responsables : Rachid Bouchakour & Pascal Masson, Professeurs, Université de Provence

- 14 permanents (5 PR, 1 PR Em., 7 MCF)
- 17 doctorants + 11 thèses soutenues (2003-06)
- Thèmes de recherche: "**Mémoires : des Matériaux aux Circuits**"



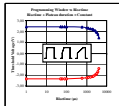
### Mémoires à Matériaux Avancés (MéMatA)

Fiabilité des mémoires ultrarapides



### Mémoires Innovantes Sur Silicium (MISSi)

Modélisation du fonctionnement des cellules



### Analyses de Performances (AP)

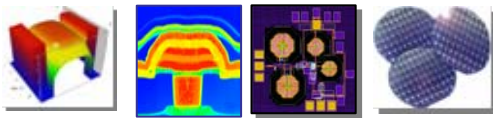
Optimisation design + signal programmation



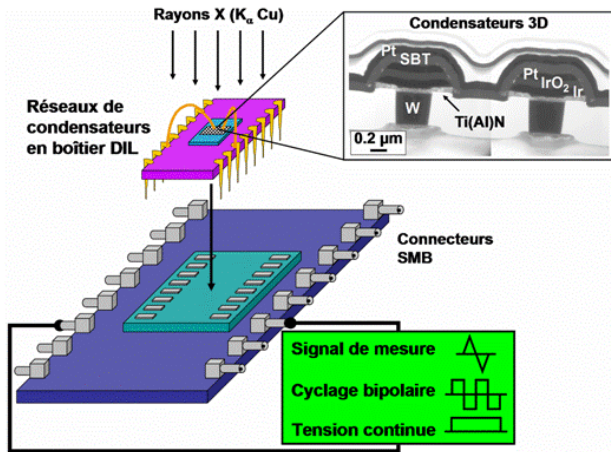
### Diagnostiques et Test de Circuits Intégrés (DiTCI)

Modélisation des défauts, test, diagnostic

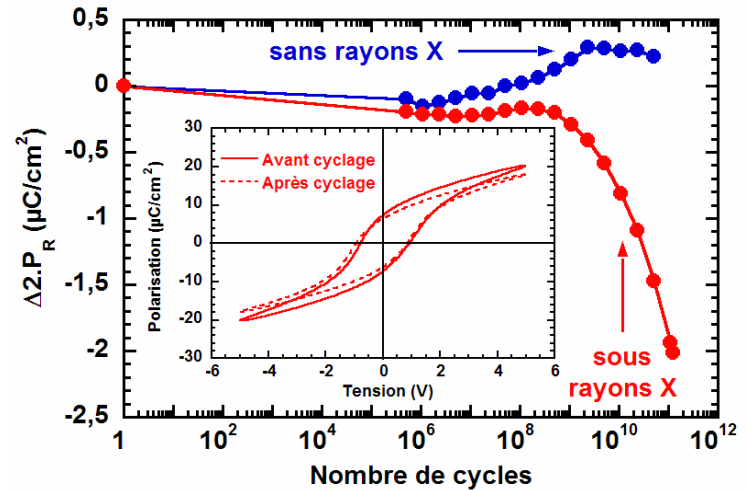
- Publications (2003-06): 43 journaux inter., 54 conf. Inter. (avec actes) et 7 brevets
- Contrats : Rousset 2008, Erevna, ANR Mémoire, TYM, Fleur (Europe), EMMA (Europe)
- Collaborations : Alliance Crolles, AMIS, Atmel, Cadence, CEA-Leti, CIMPACA, Crocus, Freescale, Fujitsu, IMEC, Infineon, Inside, NXP, Spintec, STMicroelectronics



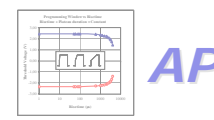
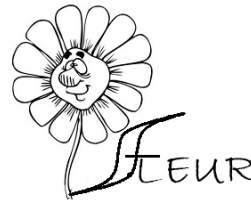
## Equipe Mémoires

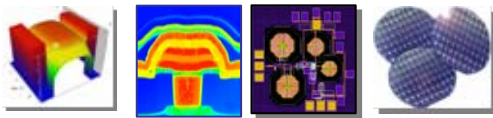


Véhicules de test FeRAM

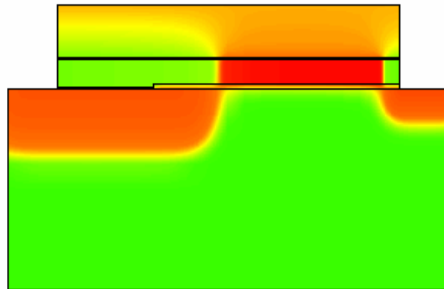


Accélération de la fatigue sous irradiation X (Réduction des performances en endurance)

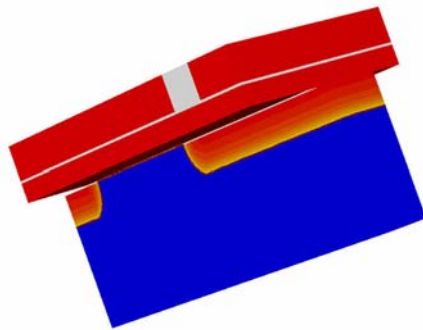




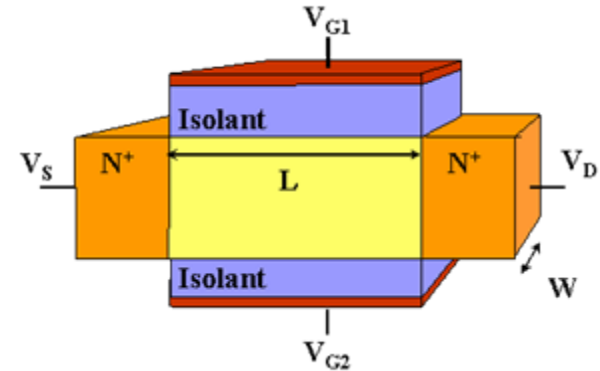
## Equipe Mémoires



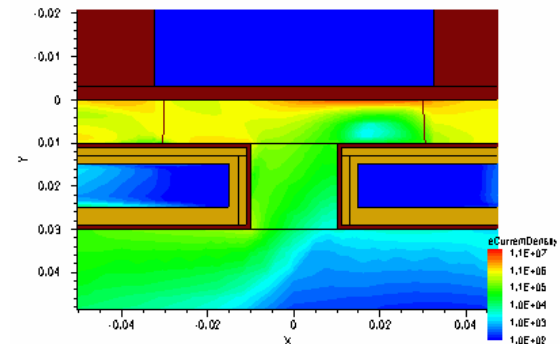
EEPROM double implant



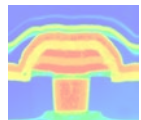
EEPROM double grille



IDG MOS (1T DRAM, NVM 1-4bits)



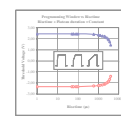
√eFLASH



MéMatA



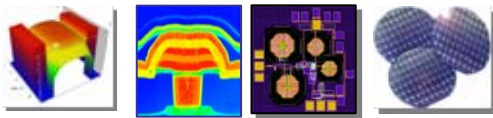
MISSI



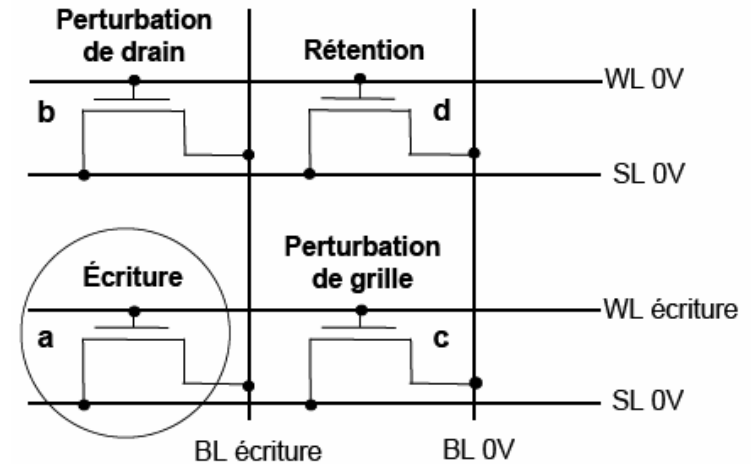
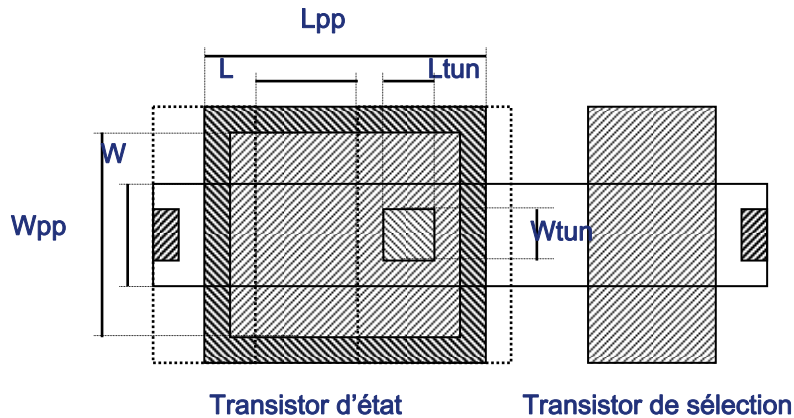
AP



DiTCI



## Equipe Mémoires

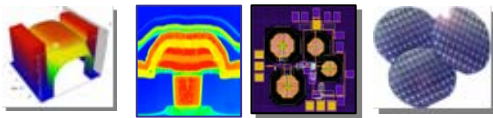


### Optimisation du dessin

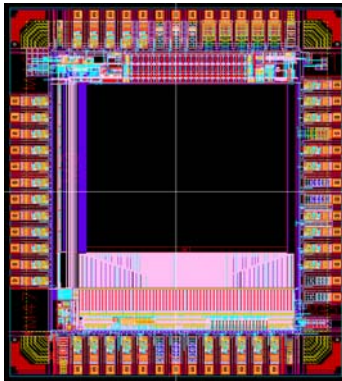
- garantir la fenêtre de programmation
- diminuer la surface
- garantir la robustesse

### Bit disturb





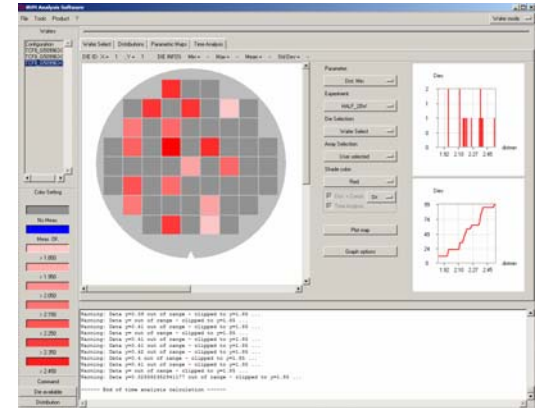
## ■ Equipe Mémoires



Test Chip EEPROM  
Technologie: 0,13µm  
Capacité: 684 Kbits



Programme de test  
Mesure en rétention LTB

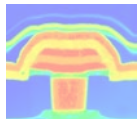


Logiciel de traitement des données de test

MATERIAUX

DISPOSITIFS

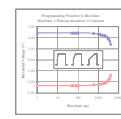
CIRCUITS



MéMatA



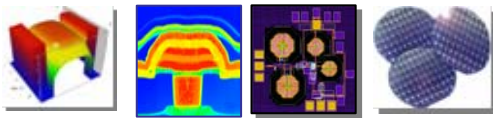
MI SSI



AP

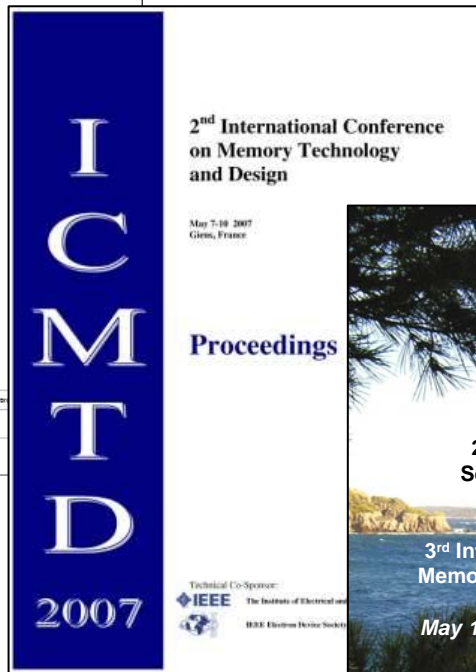
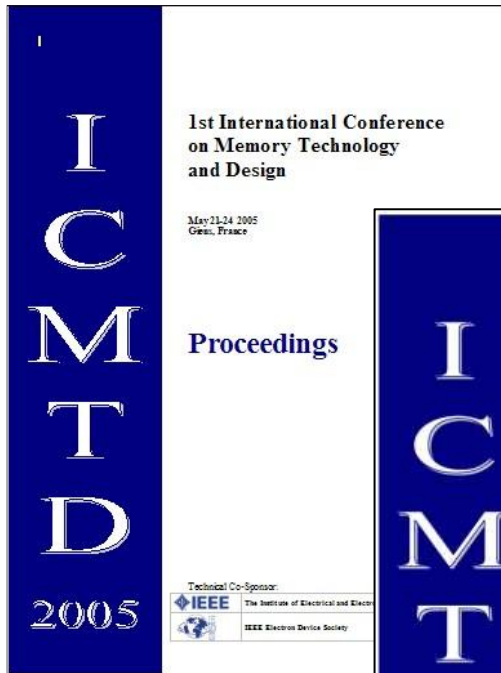


DiTCI



## ■ Equipe Mémoires

- Mise en place d'un nouveau cycle de conférences en 2005 : International Conference on Memory Technology and Design ([www.ICMTD.com](http://www.ICMTD.com))

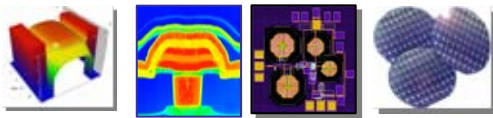


- Participation à l'organisation d'ICMTD'07 (IMEC, KUL, L2MP)



- Jumelage ICMTD/NVSMW (Freescale, STMicroelectronics, STM/Intel, L2MP)

18-21 mai 2008, Giens



## ■ Equipe Mémoires



### Patrick CALENZO

Conception de mémoires basse consommation pour étiquettes RFID

Dir. : R. Bouchakour

Bourse région



### Claire LEROUX

Fiabilité des mémoires non volatiles

Dir. : F. Lalande

Bourse CIFRE (STMicroelectronics Rousset)



### Anthony MAURE

Modélisation des mémoires Flash effaçables par page

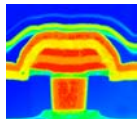
Dir. : P. Canet

Bourse CIFRE (STMicroelectronics Rousset)

MATERIAUX

DISPOSITIFS

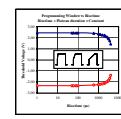
CIRCUITS



**MéMatA**



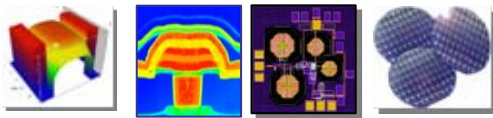
**MISSI**



**AP**



**DiTCI**



## ■ Equipe Mémoires



### Sophie PUGET

Performance de la mémoire DRAM sans capacité sur film mince

Dir. : R. Bouchakour & J.M. Portal

Bourse CIFRE (NXP Crolles)



### Jean-René RAGUET

Développement d'architecture de cellule mémoire NVM robuste

Dir. : R. Bouchakour

Bourse CIFRE (STMicroelectronics Rousset)



### Laurent REMY

Modélisation des mémoires Flash effaçables par page

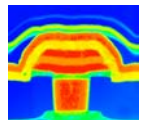
Dir. : P. Canet

Bourse CIFRE (ATMEL Rousset)

MATERIAUX

DISPOSITIFS

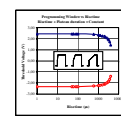
CIRCUITS



**MéMatA**



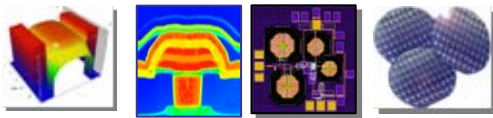
**MISSI**



**AP**



**DiTCI**



## ■ Equipe Mémoires



**Fabrice RIGAUD**

Conception de mémoires basse consommation pour étiquettes RFID

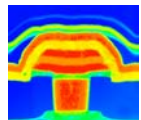
Dir. : J.M. Portal

Bourse CIFRE (STMicroelectronics Rousset)

MATERIAUX

DISPOSITIFS

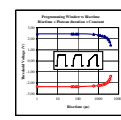
CIRCUITS



**MéMatA**



**MISSi**



**AP**



**DiTCI**