

The Nanoscience Cooperative Research Center, CIC nanoGUNE, located in Donostia / San Sebastian, Basque Country (Spain), is currently looking for a

**MASTER STUDENT**  
to work on

**Nanodevices**



# Nanodevices @ nanoGUNE

## Applied Spintronics

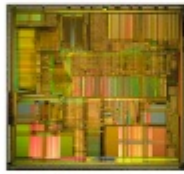
### Moore's Law

1970s  
2.250 transistors



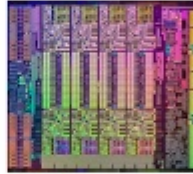
Intel 4004

1990s  
3,000,000 transistors



Intel Pentium

2020s  
20,000,000,000 transistors



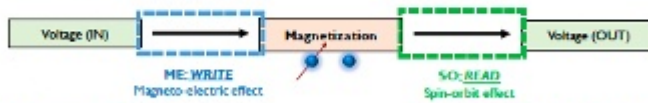
Intel Core i7

Difficult to reduce transistor size even further:

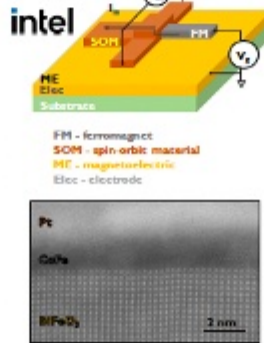
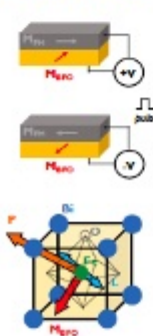
Physical limitations for voltage and frequency scaling

Solution? MESO!  
Beyond-CMOS computing with spins.

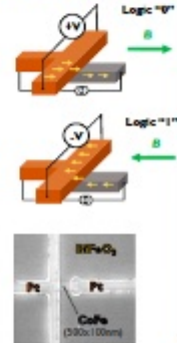
### MESO logic



### Magnetization switching



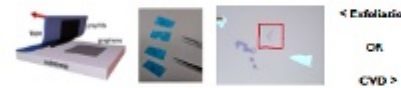
### Spin-charge conversion



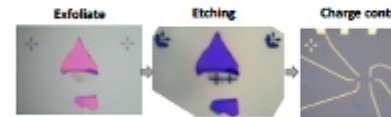
## 2D Spintronics

### Fabrication

#### 2D material preparation



#### Nanofabrication

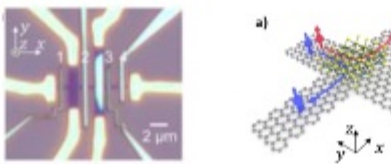


### Spin effects

#### Metal/2D heterostructure

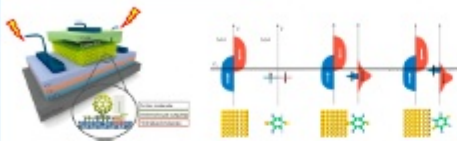


#### 2D/2D heterostructure



## Hybrid Materials

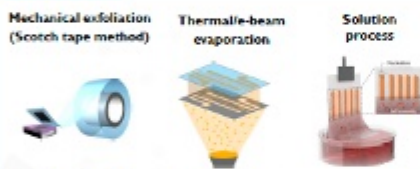
### Hybrid interface devices



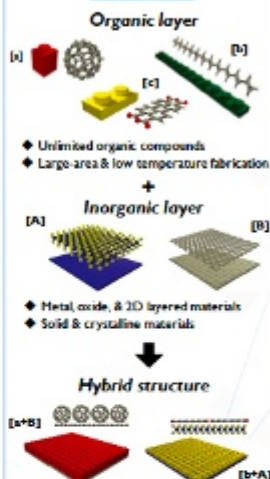
We are interested in...

- Interface-dominated nanodevices
- Controlling performance via external stimuli

### Fabrication



### Materials



## Chiraltronics

### Chirality

Chiral materials are an ideal playground for exploring symmetry and electronic transport.

### Fabrication



### Spin effects



Candidates should **apply** by completing the form below and attaching the following documents:

- a. A complete CV and academic record
- b. A motivation letter is also recommended

The **deadline** for applications is **29/02/2024**.

*NOTES:*

*(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.*

*(ii) Additional information about nanoGUNE's commitment towards [HR excellence in Research and Gender Equality](#) are available on our website.*

*(iii) We encourage you to subscribe to our [HR mailing list](#) to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.*