EM-U #113: CERN × e-Residency

SCALE *Nanotech*: story of a non-conformist scientist
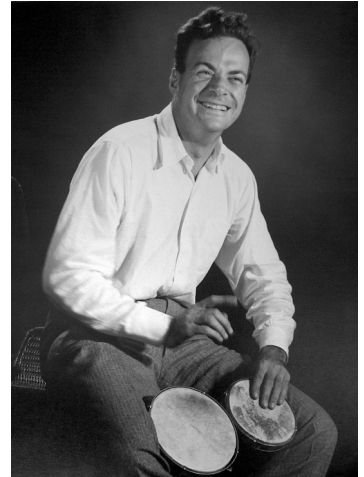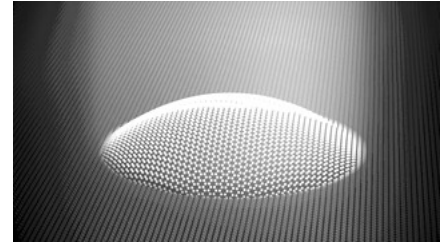
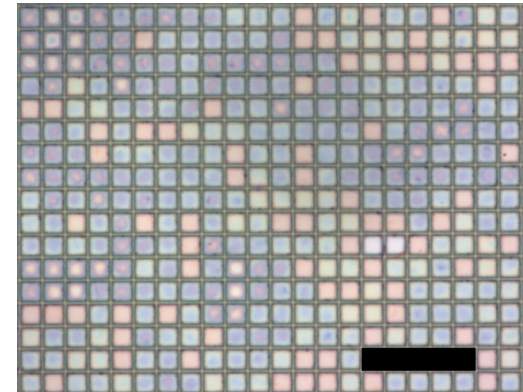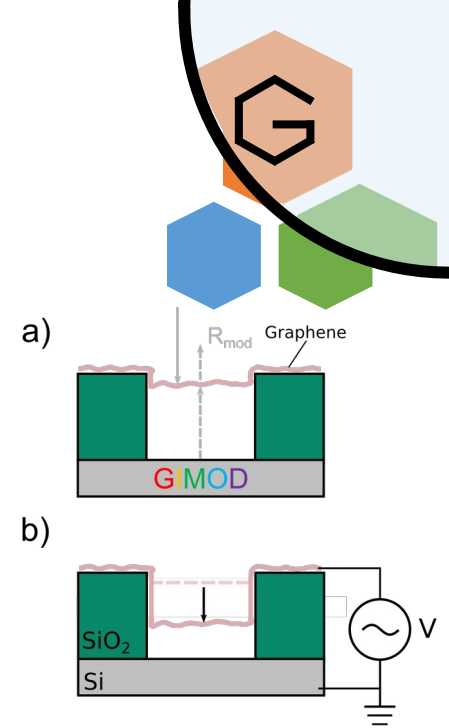Dr. Santiago J. Cartamil-Bueno

Cologne, May 7th 2021

A neo-romantic researcher?

- Surely You're Joking, Mr. Bueno!

  - Academic background: Physics, Electronics, Nanotech. PhD in Applied Physics (graphene MEMS)

  - Research nomad: Spain, Denmark, USA, Switzerland, The Netherlands, Germany

  - Tech believer, out-of-the-box overthinker, samurai inventor, impact society to get the future now.

- Disappointed in academic research (business?)

  - "If you don't like academia [or you lack the right friends], then go to…"

- The Way of the Science Entrepreneur: what would a Newton or a Feynman need to happen again?

  - Since Science became business, let scientists become *real* businessmen

  - My ideas, my projects, my IP: I am the owner of my future (what, when, where and how). No who's, no why's.

  - Protect Winterfell, for Winterfell! SCALE Nanotech is born

SCALE *Nanotech* at full speed

a)

b)

- Applied for e-Residency during my honeymoon: all digital, English, smooth, 'ephemeral'.

  +1 month: SCALE Nanotech incorporated with Estonian representative + accountant

  +1 month: applied to public funding (H2020 ATTRACT)

  +5-6 months: proposal accepted and funding (lump sum) hits bank account

  +12 months: GIMOD project* for AR/VR displays (social impact)

  - ✔ PC for simulations of graphene MEMS + prototype design: in my home office/lab (garage style!)
  - ✔ Initial microfabrication: outsourced to R&D facility with cleanroom
  - ✔ Main microfabrication: self-service + equipment rent (business trip!)
  - ✔ Initial characterization and tests in my home lab, then rented lab in Cologne (by bike!)
  - ✔ Results: full-spectrum 3630 ppi GIMOD demonstrators

- In between: graphene lightsails for space propulsion (fun experiments, maybe impact?)
- e-Residency acceleration: <u>full control, independence and flexibility for R&D</u> while:
  - learning about business, accounting, taxes, contracts, budgeting, funding, grant agreements, consortium agreements, etc.
  - making social impact and having fun!

How to do deep-tech R&D as e-Resident

- Make yourself visible: http://scalenano.tech/, @SCALE_Nanotech
- Get money:
  - Calls for 3rd parties (cascade funding): look for 100k lump-sum proposals (dma 200k/3year!)
  - Donations: own savings or ask family/friends. Combine it with grants of 60-80% funding rate.
  - Mainstream public funding (funding and tenders), loans and investors: good luck!
- Rent equipment, sell services as a start (consultancy, R&D): Labs Explorer, Clustermarket
- Rent a lab space and build your lab
  - Rent lab space (better with specialized infrastructure rental) in the location you want to be.
  - Use your imagination to make basic and manual DIY setups.
  - Have fun (!)
  - Sell your success (!!!)
  - Reinvest in your R&D company (Estonia's cash-flow tax system is great for this!)
- Join like-minded communities:
  - For science: the Ronin Institute and IGDORE.
  - For business? We lack of a virtual research institute/cooperative: cartamil@scalenano.tech

Questions?

Thank you!