

A close-up photograph of a microelectronic assembly process. A fine, thin wire is being positioned by a mechanical arm, likely for wire bonding, onto a small component mounted on a circuit board. The background is blurred, showing other parts of the machinery.

RFWild - Measurements, Modeling, Microelectronics



UNIVERSIDADE
FEDERAL DA
PARAÍBA

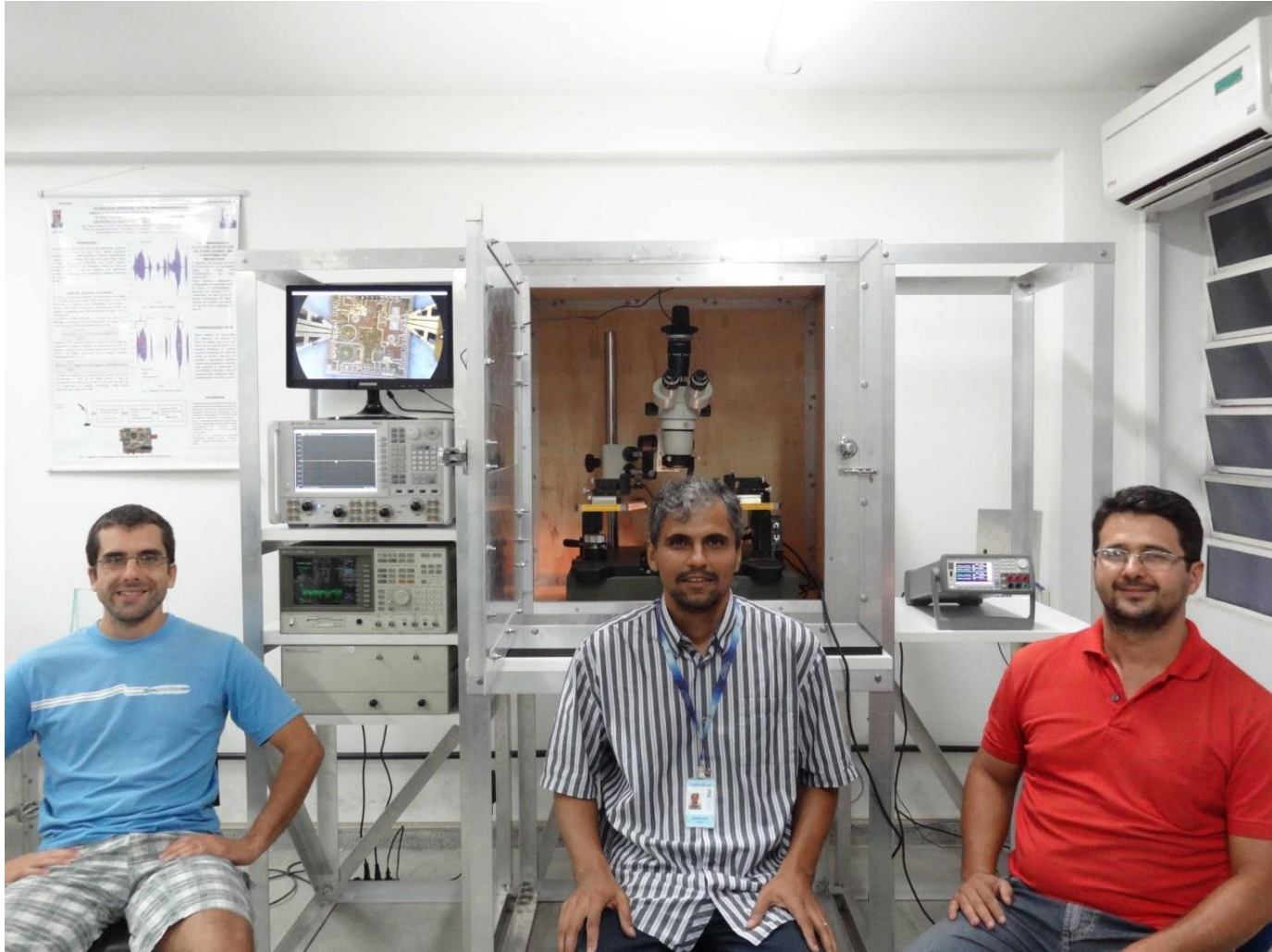


INSTITUTO
FEDERAL
Paraíba

RFWild's infrastructure

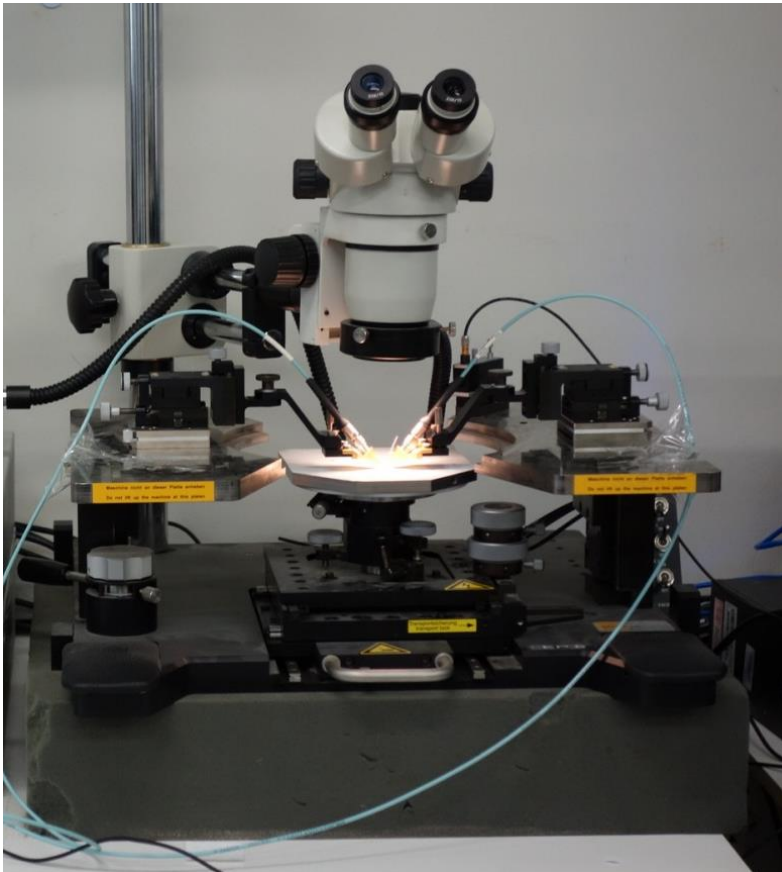
- Infrastructure at our disposal:
 - Wafer probe station
 - Noise measurements
 - S- and X-Parameters measurements
 - I x V measurements
- Summary of our knowledge and background

Infrastructure at our disposal



Suss EP6 Manual wafer probe station

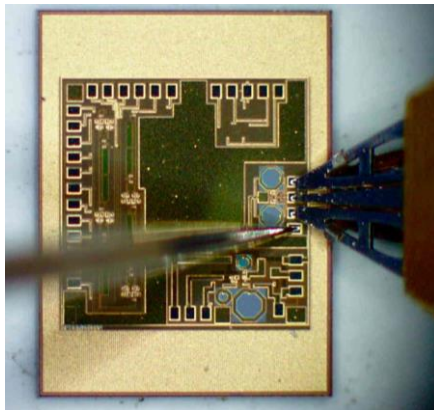
- 2 GSG 125 μm probes
- 2 DC probes
- 2 bias tees (.045-26 GHz)
- Calibration substrate and connections up to 50 GHz
- 2 GSGSG 125 μm probes being purchased



Infrastructure at our disposal

- Some of our probing photos:

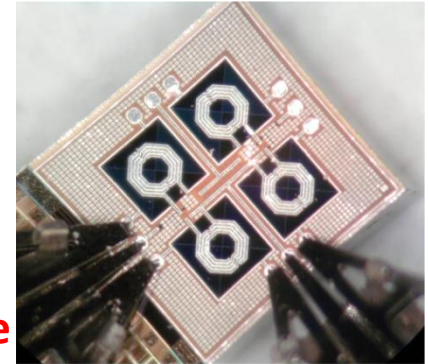
2.4 GHz Oscillator



DC probe

GSG probe

2.4 GHz VCO



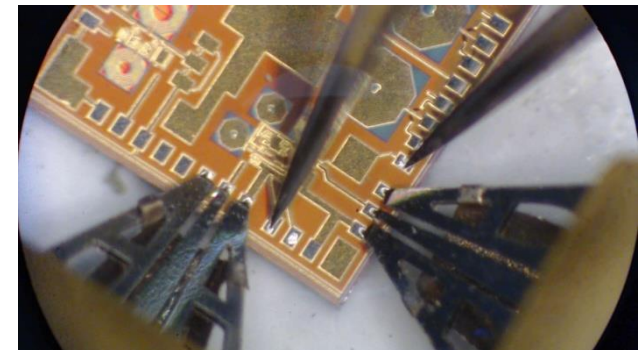
GSG probe

GSG probe

**2.4 GHz
Front-End**

DC probe

DC probe

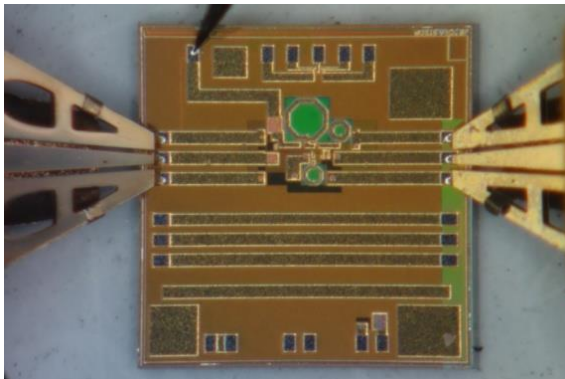


GSG probe

GSG probe

DC probe

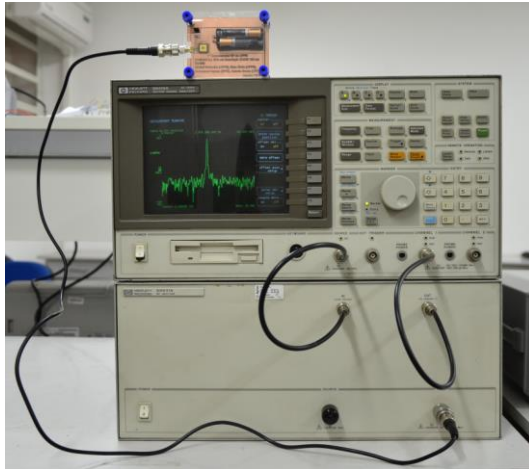
2.4 GHz LNA



GSG probe

GSG probe

Infrastructure at our disposal



(Very good) signal analyzers:

DC – 10 MHz

2 MHz – 2.65 GHz

10 MHz – 13 GHz



LF differential amplifier:

16 Hz – 40 MHz

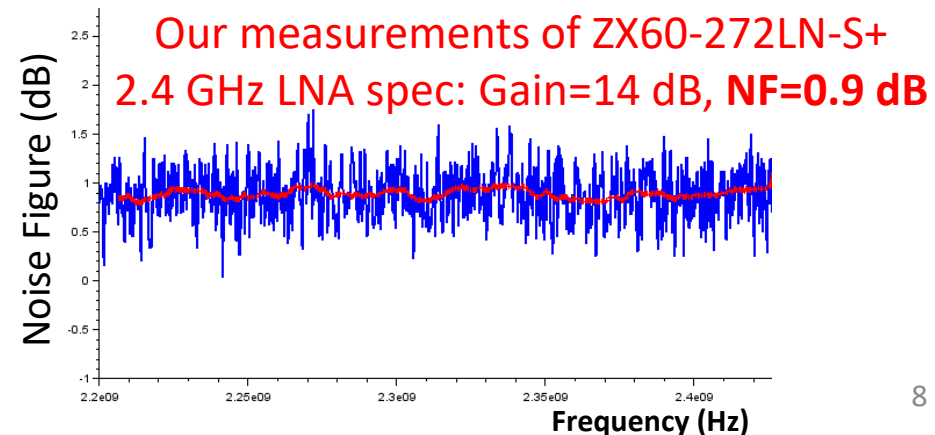
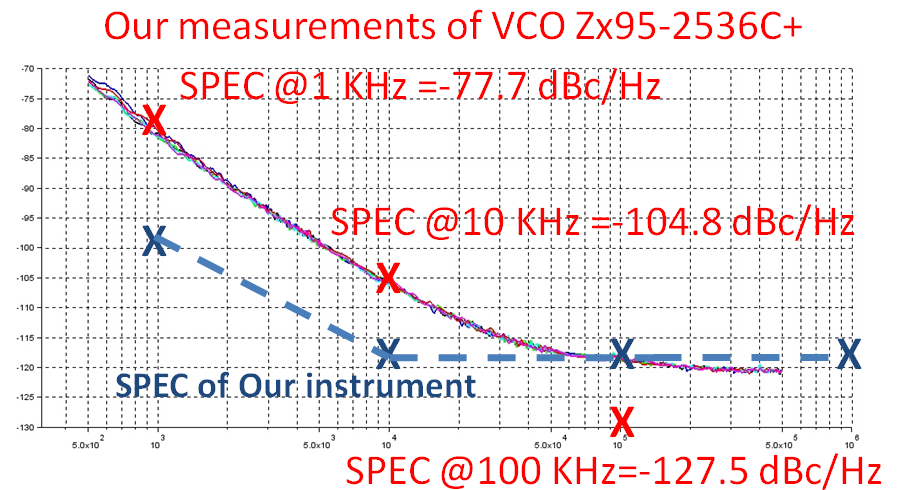
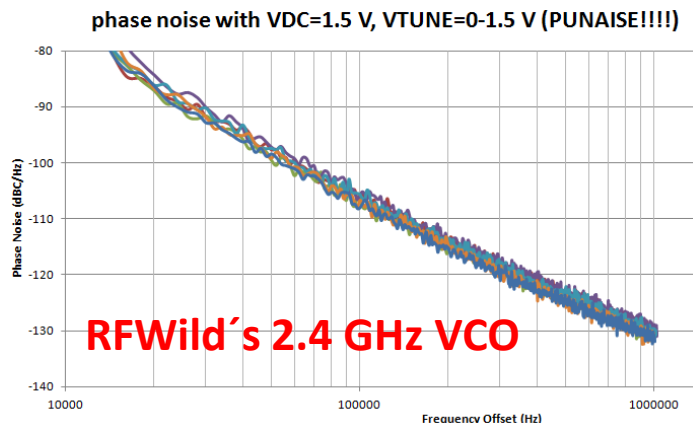
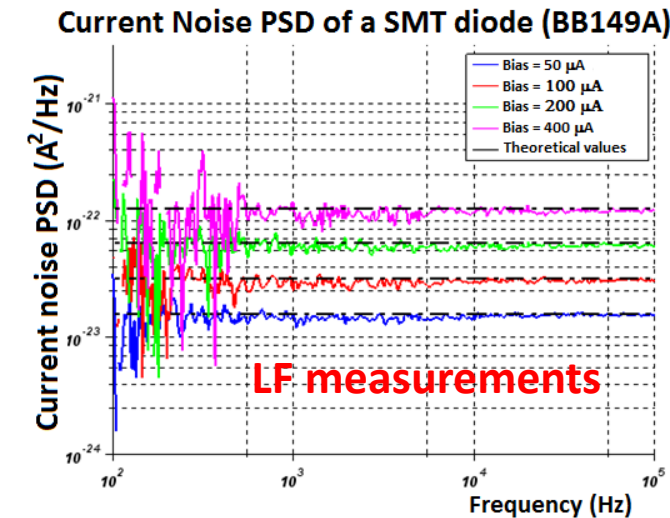


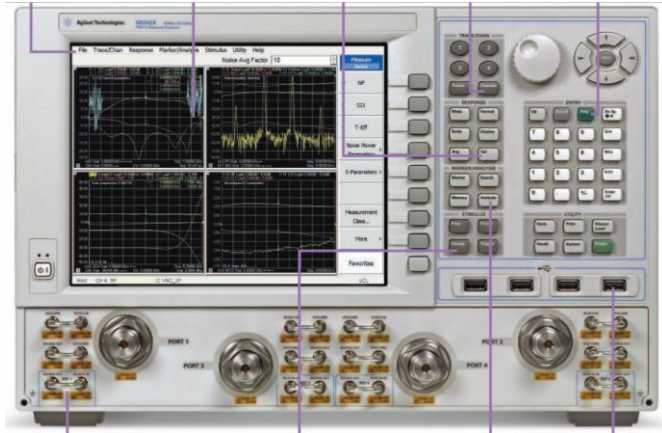
Keysight 346A (10 MHz – 18 GHz)
for LNA characterization

- LF (< 10MHz) noise measurements:
 - Flicker (1/f) noise measurements: **quality of the cristaline structure; noise modeling in transistors**
 - **Noise floor:** 0.5 nV/ $\sqrt{\text{Hz}}$ @ 100 KHz
- Phase noise measurements (<13 GHz):
 - PM demodulation or spectrum measurement.
 - Noise floors: **-97 dBc@1 kHz**; -120 dBc@10 kHz, -120 dBc@100 kHz; **-132dBc@1 MHz**; -146 dBc@10 MHz
- Noise figure measurements (<13 GHz):
 - NF **as low as 1 dB!!**

Infrastructure at our disposal

- Measurements done so far:





PNA-X 13.5 GHz 4-ports
(to the best of our knowledge,
the 1st of its kind in Brazil)

Measurement capabilities: 4-ports linear (S) and nonlinear (X) characterization: **Transformers**, **Differential Amplifiers**, **Power Amplifiers**, **Duplexers**, Multiple Antennae Networks, ...

Infrastructure at our disposal



IxV tracer, 2 channels
DC/ pulsed

Measurement capabilities: 1- and 2-ports I x V
characterization (**DC and pulsed**):

$$10^{-13} \text{ A} \leq \text{CURRENT} \leq 3 \text{ A}$$

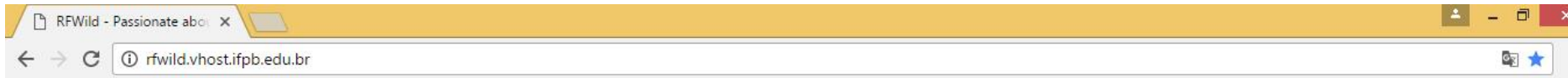
$$10^{-6} \text{ V} \leq \text{VOLTAGE} \leq 210 \text{ V}$$

To be soon available: **temperature controlled
measurements!**

Summary of our knowledge/background

- Characterization and modeling of passive devices: inductors, transformers, transmission lines, ...
- Characterization and modeling of active devices: Bipolar, MOS, HBTs,... Si, SiGe, GaAs, InP, ...
- Design of high FOM (Figure of Merit) LNAs, VCOs, Front-Ends (and going further and “*wilder*”...)

Our website



NEWS

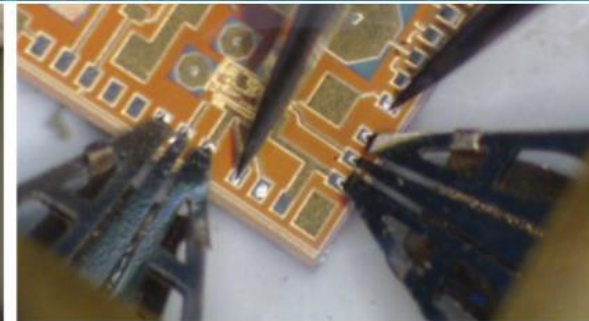
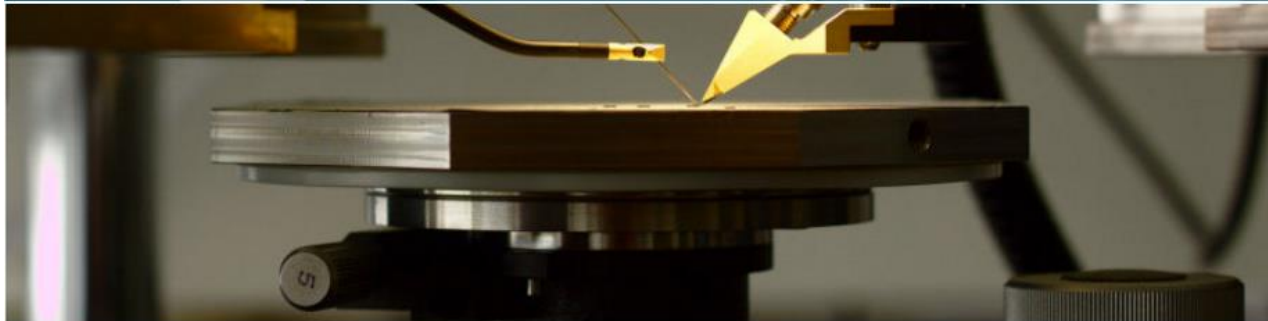
SHARED FACILITIES

OUR EXPERTISE

RF COURSE

ABOUT US

CONTACT



Our new baby

Posted on 16/10/2016

100 kg of aluminium 40 kg of wood 200 screws 8 RF connectors This baby was tricky to birth but it is now reality. We have now a perfect structure to make our
[Read More](#)

RECENT POSTS

[Our new baby](#)

[Who said quiet ?](#)

[Trainee of Caroline: a success](#)

[New technology – New research theme](#)

<http://rfwild.vhost.ifpb.edu.br>

A close-up photograph of a microelectronic assembly process. A fine wire is being positioned by a mechanical arm over a small component on a circuit board. The background is blurred, showing other parts of the assembly station.

RFWild - Measurements, Modeling, Microelectronics



UNIVERSIDADE
FEDERAL DA
PARAÍBA



INSTITUTO
FEDERAL
Paraíba

Thank you!