

Integrated magnetic components

My research work concerns integrated magnetic components such as inductors and transformers. Fig.1 shows 3 different magnetic components: the first one is an inductor, the second one is an interleaved transformer with one magnetic layer and the third one is a Face to Face transformer with two magnetic layers.

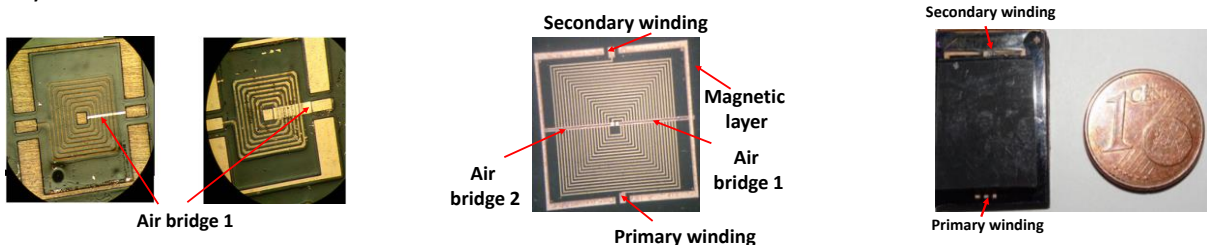


Fig 1. : a) Inductor

b) Interleaved transformer

c) Face to Face transformer

I will present the main aspects of my studies that concern:

- **Simulation and design** of integrated magnetic components that are performed by using HFSS. HFSS (High Frequency Structure Simulator) is a commercial finite element method solver for electromagnetic structures from Ansys.

- **Microfabrication** using substrate preparation (grinding, polishing, femto-laser micro-machining ..), copper film deposition by using RF sputtering , microelectronics processes in clean room (photolithography, wet etching), passivation ...

- **Characterization** with impedancemeter and Vector Network Analyzer. Magnetic and electrical measurements are carried out as well.

- **Modeling**

Equivalent circuit models are developed.

