



Bachelor or Master thesis: Characterization of integrated Low Dropout Regulator for High Energy Physics applications

Motivation and objectives

Detection of ionizing particles requires dedicated integrated circuits, designed with ultra-low intrinsic noise. In addition, it is essential to avoid unwanted noise from coupling into the circuit through the power supply. To attenuate any external noise, a low dropout (LDO) regulator with good rejection of power supply noise is used between the external power supply (a DCDC converter) and the low-noise detection circuits.

The LDO has been designed and fabricated, in collaboration with CERN. The goal is to characterize the circuit and evaluate its performance under different operating conditions. It is also necessary to understand how it degrades under long-term electrical stress and under ionizing radiation stress.

You will learn

- Key parameters characterizing linear voltage regulators
- Compromises in the stability of this kind of circuits
- Influence of operating conditions on the integrated circuit operation
- Test methodologies in LDO characterization
- Reliability aspects in ICs related to electrical- and ionizing radiation stress
- Requirements for electronics operating in high energy physics applications
- Integrated circuit design cycle

General information

- Start as soon as possible, at the Institute of Electronics.

Contact person/Supervisor

IFE:

Alicja Michalowska-Forsyth

alicja.michalowska@tugraz.at