Contribution ID: 21 Type: Oral

## Charge pump DC to DC converter Inner Tracker Applications

Thursday, 28 September 2006 14:35 (25 minutes)

We present results from a capacitor charge pump DC-DC converter prototype using 0.35um HV-CMOS technology fabricated in April 2006. The purpose of this prototype is to test the switch technology both for achievable efficiency and for radiation tolerance. The IC of this test device contains only switches, with all clocks being externally supplied and driven and the capacitors also external. The configuration used is a 4 capacitor stack producing a nominal x4 input current multiplication factor. The goal for this type of device is to be of low enough mass and high enough radiation tolerance to be placed on individual modules in the innermost layers of the ATLAS detector. Irradiation results will be presented if available. A prototype test card for use with a silicon strip stave prototype is under development.

## **Summary**

We present results from a capacitor charge pump DC-DC converter prototype using 0.35um HV-CMOS technology fabricated in April 2006. The purpose of this prototype is to test the switch technology both for achievable efficiency and for radiation tolerance. The IC of this test device contains only switches, with all clocks being externally supplied and driven and the capacitors also external. The configuration used is a 4 capacitor stack producing a nominal x4 input current multiplication factor. The goal for this type of device is to be of low enough mass and high enough radiation tolerance to be placed on individual modules in the innermost layers of the ATLAS detector. Irradiation results will be presented if available. A prototype test card for use with a silicon strip stave prototype is under development.

**Primary authors:** GARCIA-SCIVERES, Mauricio (Lawrence Berkeley National Lab); ELY, Robert (Lawrence Berkeley National Lab)

Co-authors: DENES, Peter (Lawrence Berkeley National Lab); HYNYNEN, Sami (Lawrence Berkeley National

Lab)

**Presenters:** GARCIA-SCIVERES, Mauricio (Lawrence Berkeley National Lab); ELY, Robert (Lawrence Berkeley

National Lab)

**Session Classification:** Plenary Session P5-LHC experiment electronic upgrades