

# Calorimetric measurement of the <sup>163</sup>Ho spectrum: from single pixels to arrays

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#### Amplitude Ch 0 [a.u.]

ECHO

## **Microwave SQUID Multiplexer**<sup>[1]</sup>



### Challenges

- Energy sensitivity degraded compared to 2-stage - Dissipated power inside the cryostat very low dc-SQUID

## Energy deposition in absorber magnetic flux change in related temperature sensor

magnetic flux change in associated rf-SQUID

shift of resonance frequency of corresponding resonator

monitoring frequency shift as a change of amplitude/phase

### Main Advantages

- Complex room temperature readout electronics Two Coaxes and one HEMT for readout of ~1000 detectors
  - No limitation of signal rise-time

[1] J.A.B. Mates, G.C. Hilton, K.D. Irwin, L.R. Vale, and K.W. Lehnert, Appl. Phys. Lett. 92(2) (2008)

### 64-Pixels Array with integrated rf-SQUID readout Non-hysteretic rf-SQUIDs ε = 220ħ

## **Prototype results**





## **Conclusion & Outlook**





- first arrays with 64 pixels have been produced
  - characterization of the performance
- <sup>163</sup>Ho production and purification
- Tests for  $4\pi$  absorber preparation implantation → alloys



