

MKIDs: Microwave Kinetic Inductance Detectors

Ionizing particle $E > 2\Delta$ (gap parameter, \sim meV)

Cooper Pairs break, quasiparticles produced

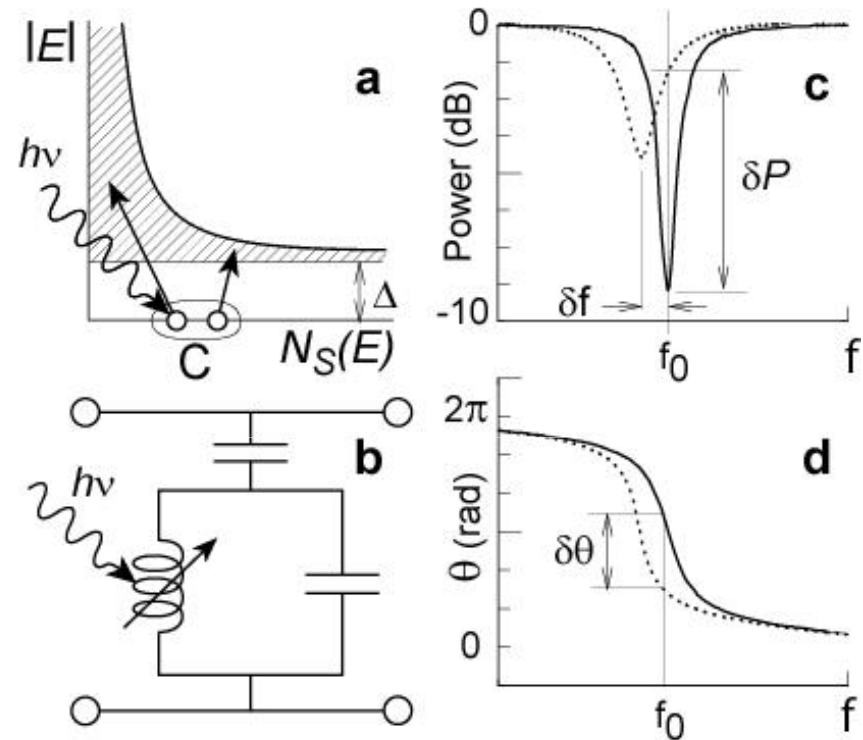
Complex conductance changes

$$\frac{\delta f_r}{f_r} = -\frac{\alpha}{2} \frac{\delta L_s}{L_s} \quad \delta Q^{-1} = \alpha \frac{\delta R_s}{\omega L_s}$$



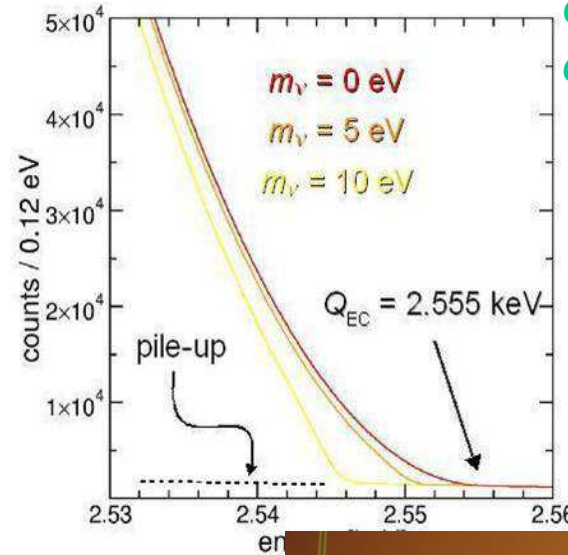
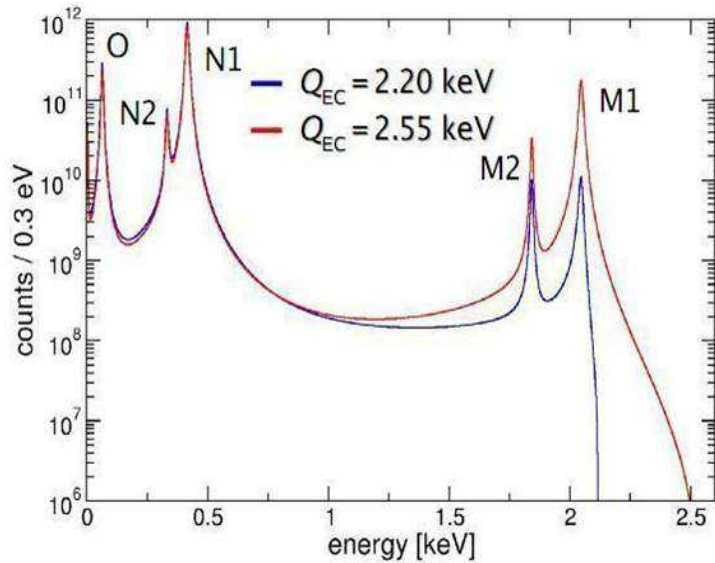
4-12 GHz
cryo amp

Microresonators work in frequency domain: with a single feedline coupled to a microwave amplifier thousands channels multiplex is possible



Microresonators for ν mass measurement

Measurement of Dy atomic de-excitation (mostly auger e^-), $Q \sim 2-3$ keV



A. De Rujula and M. Lusignoli, Phys. Lett. B 118 (1982) 429

The ^{163}Ho will be embedded in the inductive part of the resonator

