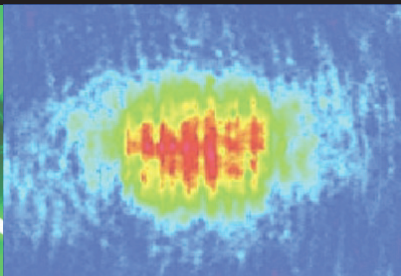


Joint UoC/FORTH AMO Seminar

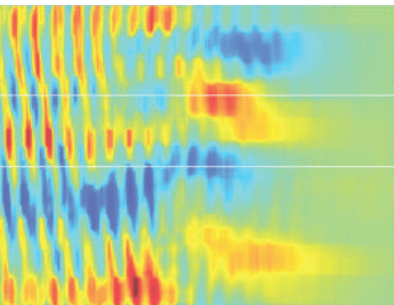


Cold atoms meet flux quanta and microwave cavities

Prof. József Fortágh - University of Tübingen

Coupling ultra-cold atoms and superconductors promises novel quantum interfaces where quantum states of electronic or magnetic degrees of freedom may be coherently transferred from one system to the other. I present experimental results on the interaction of ultra-cold atomic clouds with superconducting circuits and discuss the perspectives for quantum information processing.

October 11 2017, 16:30, Physics Department 3rd Floor Seminar Room



$$|\Phi_1\rangle = \frac{1}{\sqrt{2}}(|1\rangle \otimes |0\rangle + \tan \theta |1\rangle \otimes |0\rangle + \sqrt{1 - \tan^2 \theta} |1\rangle \otimes |1\rangle)$$

$$|\Phi_2\rangle = \frac{1}{\sqrt{2}}(|1\rangle \otimes |0\rangle - \tan \theta |1\rangle \otimes |0\rangle - \sqrt{1 - \tan^2 \theta} |1\rangle \otimes |1\rangle)$$

$$|\Phi_3\rangle = \sqrt{1 - \tan^2 \theta} |1\rangle \otimes |0\rangle - \tan \theta |1\rangle \otimes |1\rangle_z$$

$$|\Phi_4\rangle = |0\rangle \otimes |1\rangle$$

$$\hat{\pi}_0 = (1 - p) |0\rangle \langle 0| + p |1\rangle \langle 1|$$

$$\hat{\pi}_1 = (1 - p) |1\rangle \langle 1| + p |0\rangle \langle 0|$$

