



Hybrid Superconductor/Ferromagnet Josephson junctions for memory applications

Roberta Caruso (Napoli)

ABSTRACT

Superconducting circuits are already successfully used for limited applications such as mixed signal Digital RF circuits for communications and signal intelligence. Recent improvements in energy efficient superconducting circuits (ERSFQ and eSFQ) have paved the way for application of this logic to the next generation of supercomputers. However, their application in high performance computing is limited by the absence of a scalable, high density, energy efficient and high speed Random Access Memory (RAM).

In 2012 magnetic Josephson junctions (MJJs) suitable for memory applications have been demonstrated, this project will be mainly focused on detailed test of the effect of magnetic field pulses on MJJs aiming to demonstrate that the use of external fields can induce the switching between the two logical states using smaller magnetic field pulses, thus improving the energy efficiency of the memory cell.

Genova: C.so F. M. Perrone, 24 - 16152 - Genova - ☎ +390106598710 - Fax: +390106506302

L'Aquila: c/o Dip.to di Scienze Fisiche e Chimiche - Via Vetoio - 67010 - Coppito (AQ) - ☎ +390862433014 - Fax: +390862433033

Napoli: c/o Dip.to di Fisica - Complesso di Monte S. Angelo - 80126 - Napoli - ☎ +39081676438 - Fax: +39081676446

Salerno: c/o Dip.to di Fisica - Via Giovanni Paolo II, 132 - 84084 - Fisciano (SA) ☎ +39089969146 - Fax: +39089968817