

quantum technologies and quantum processes

massimo palma
salvatore lorenzo

francesco ciccarello
tony apollaro



tecnologie quantistiche

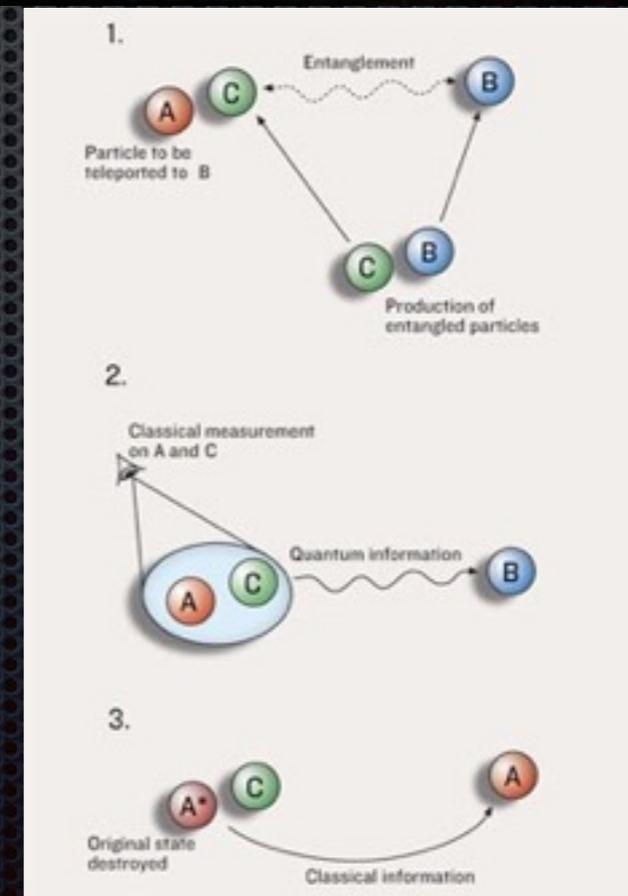
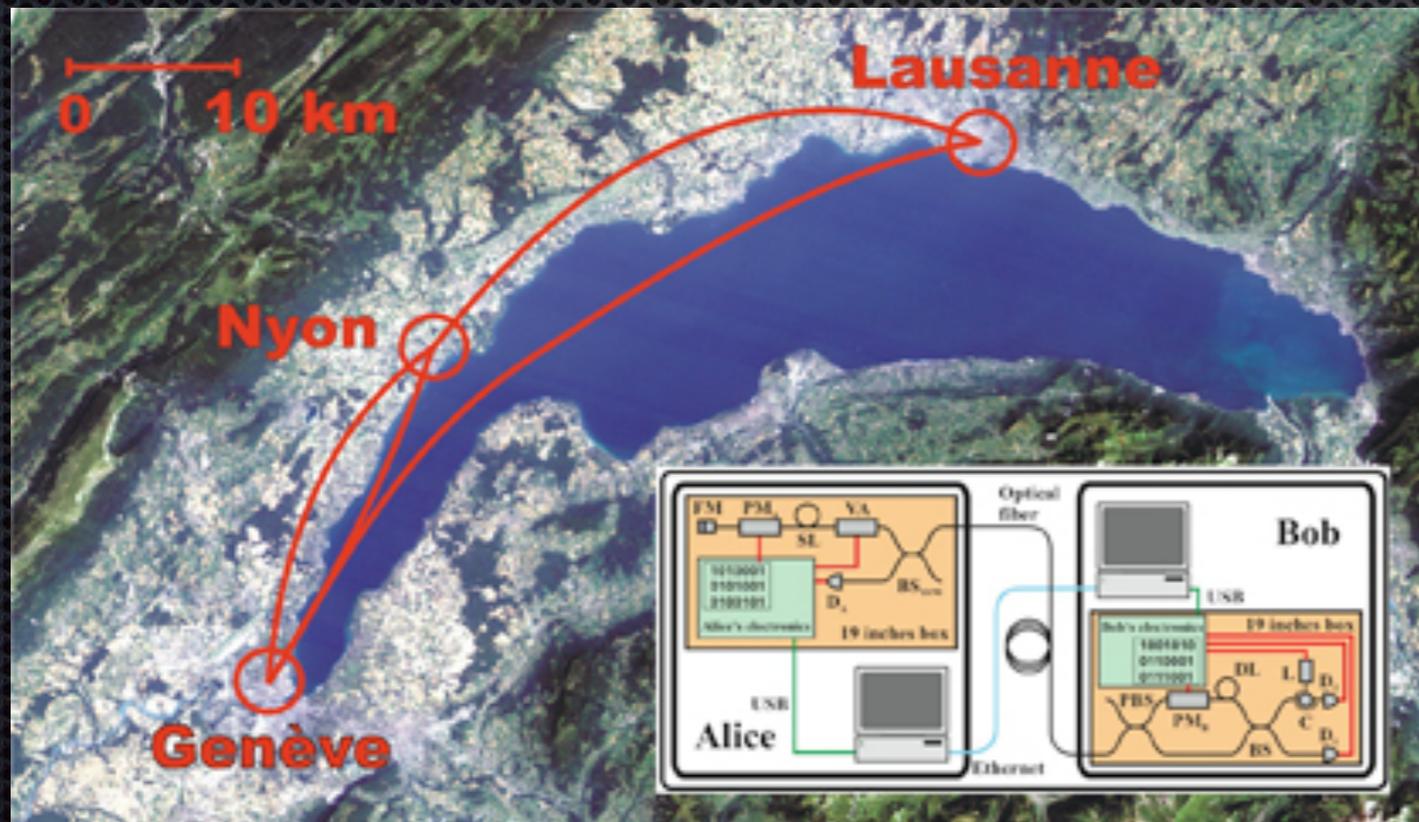
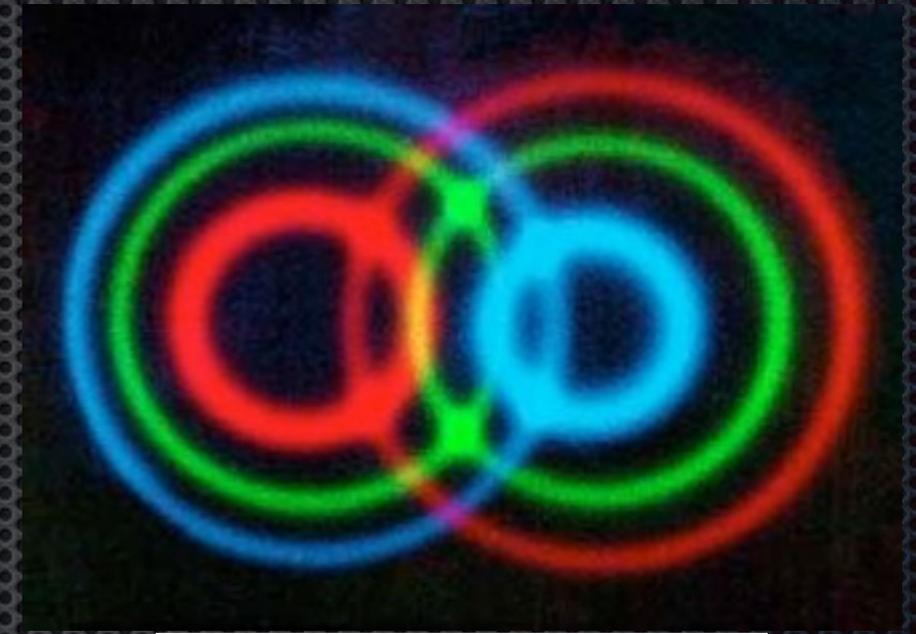
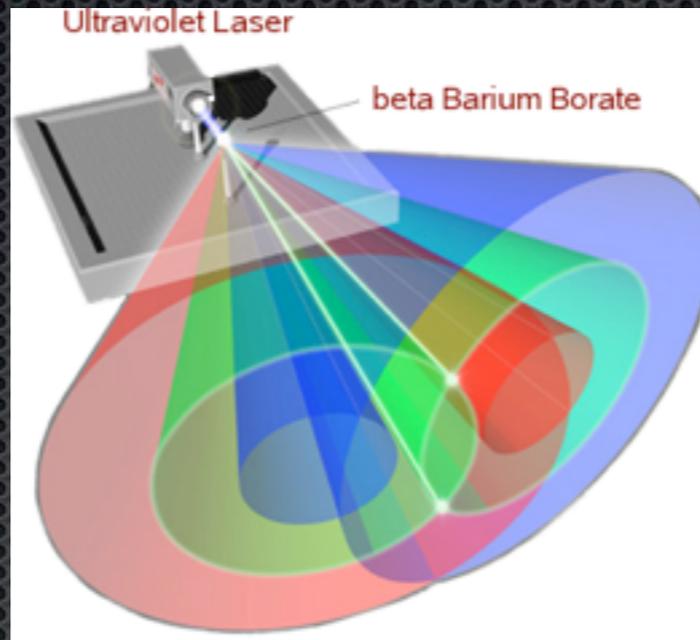
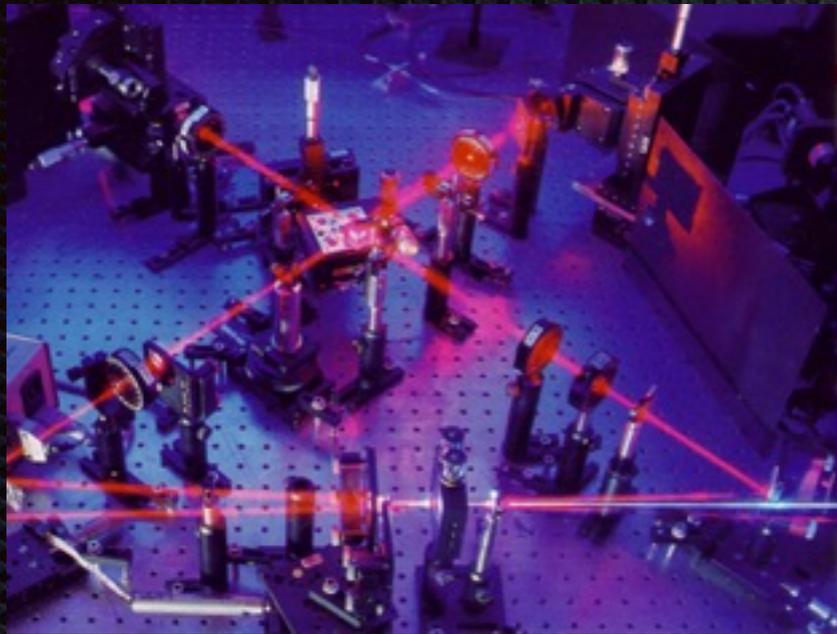
quantum communication

quantum computation

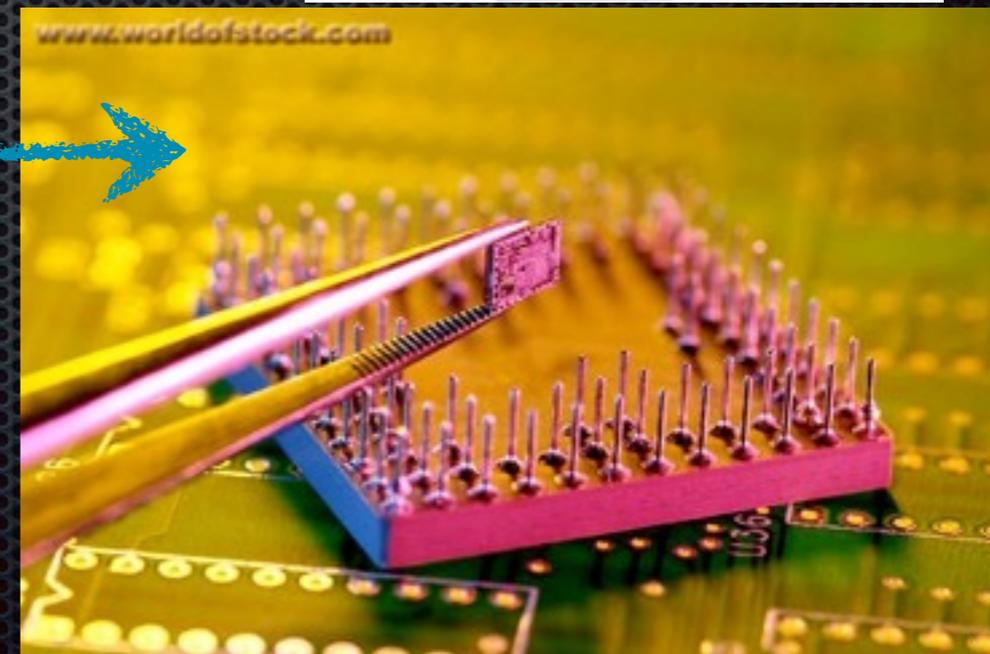
quantum thermodynamics

quantum metrology

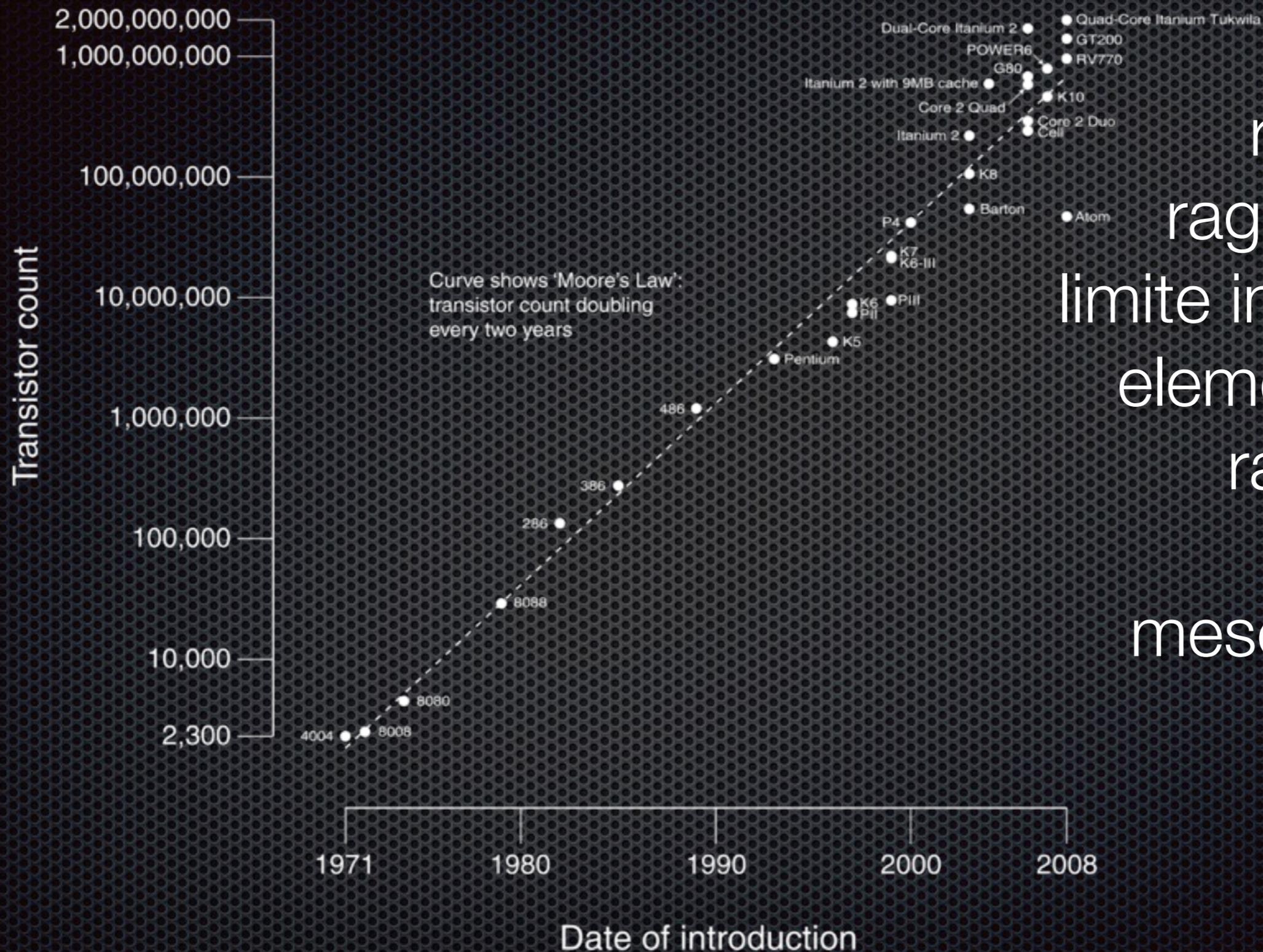
teletrasporto quantistico, crittografia quantistica



“Information is physical”



CPU Transistor Counts 1971-2008 & Moore's Law



stiamo
rapidamente
raggiungendo il
limite in cui i singoli
elementi circuitali
raggiungono
dimensioni
mesoscopiche o
addirittura
atomiche

SU SCALA ATOMICA EMERGE UN COMPORTAMENTO QUANTISTICO

diffrazione di
fullereni

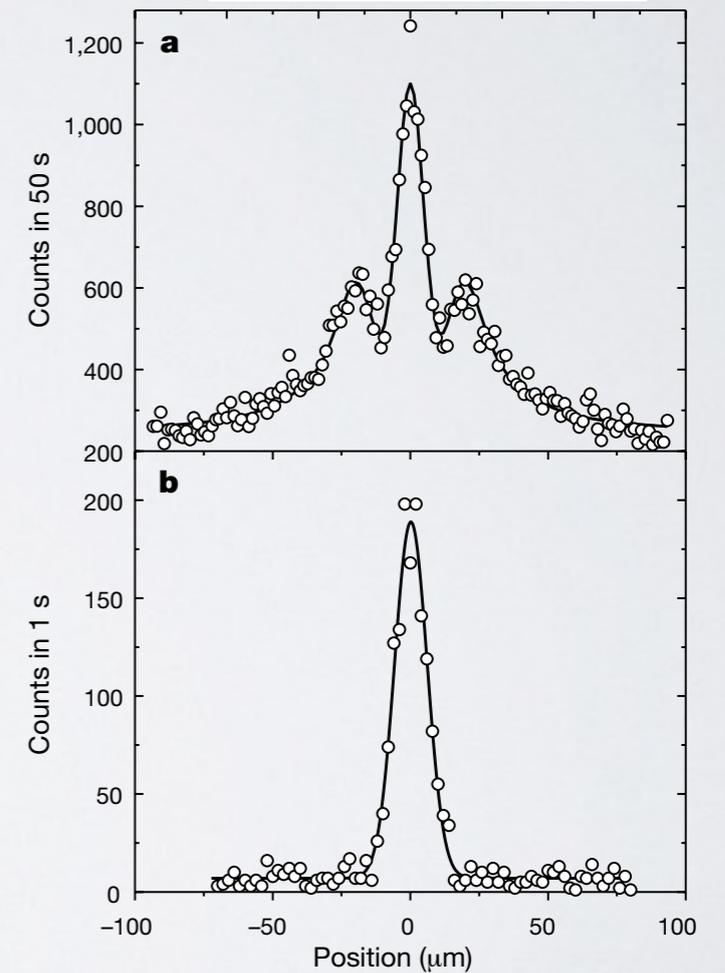
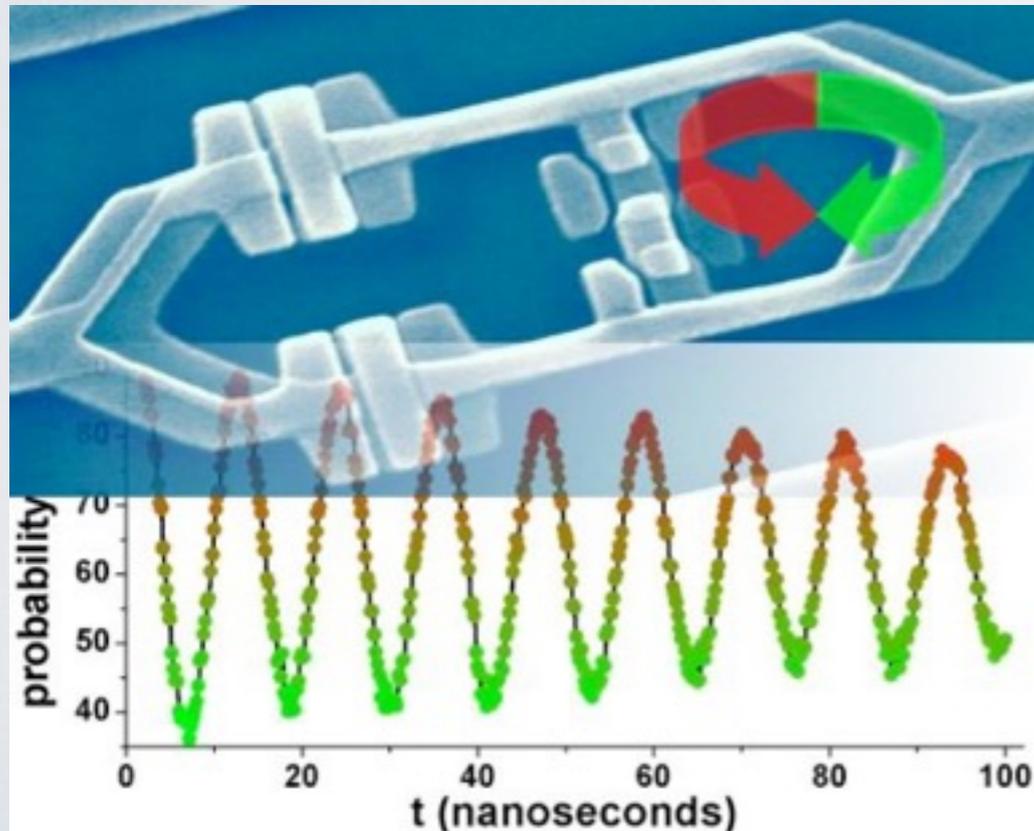
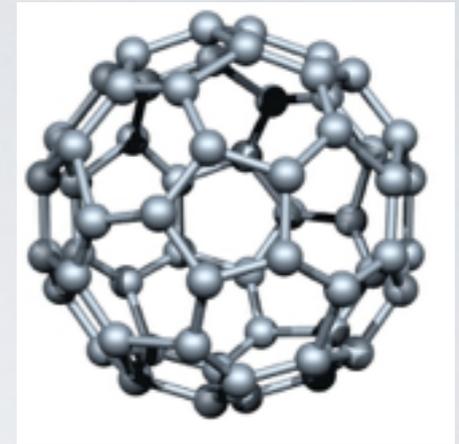
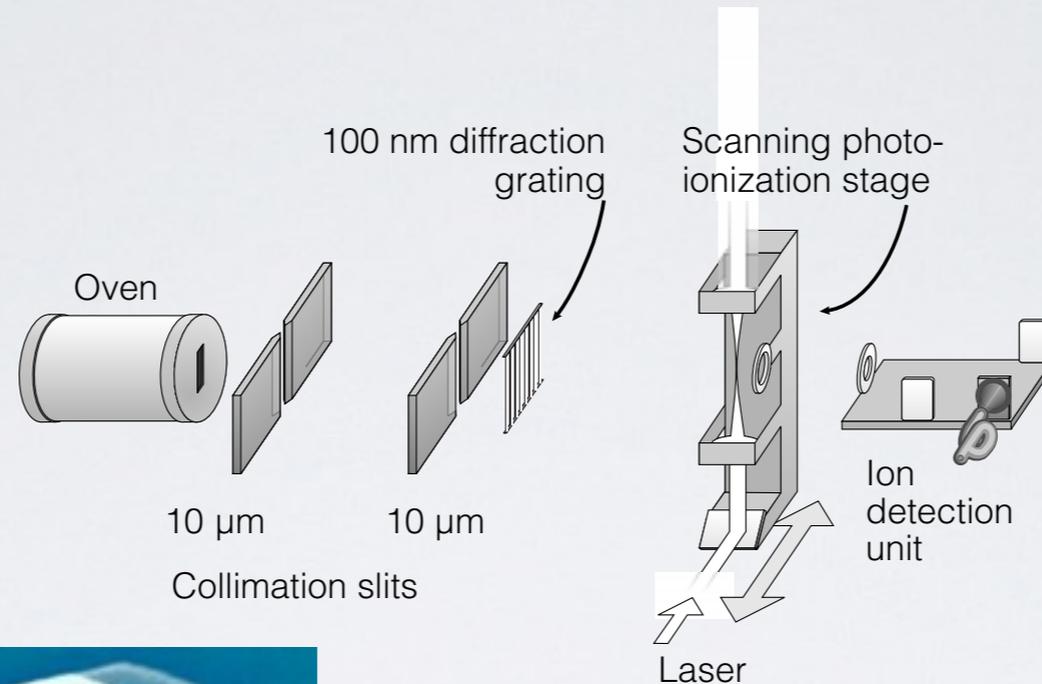
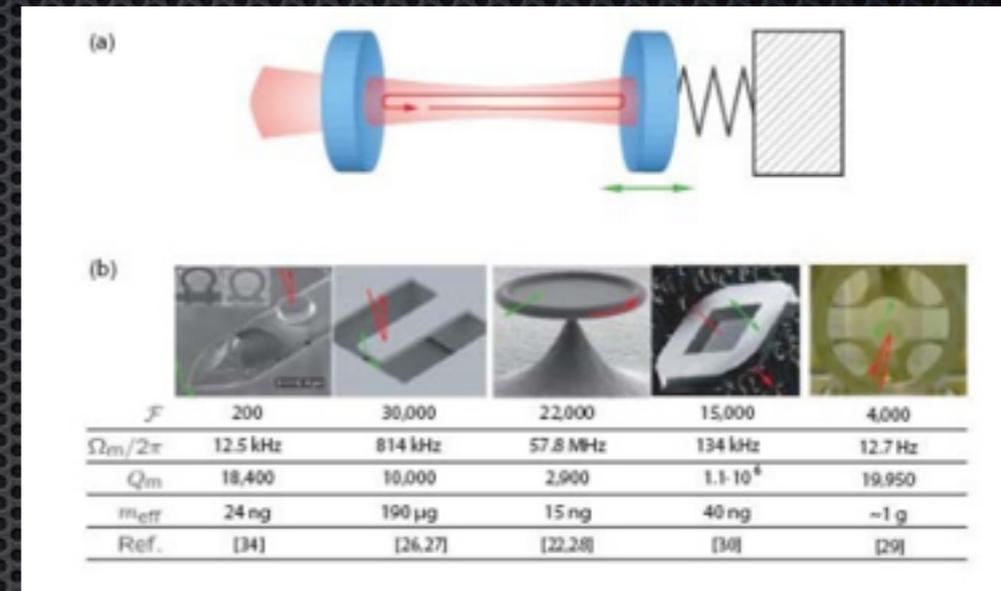
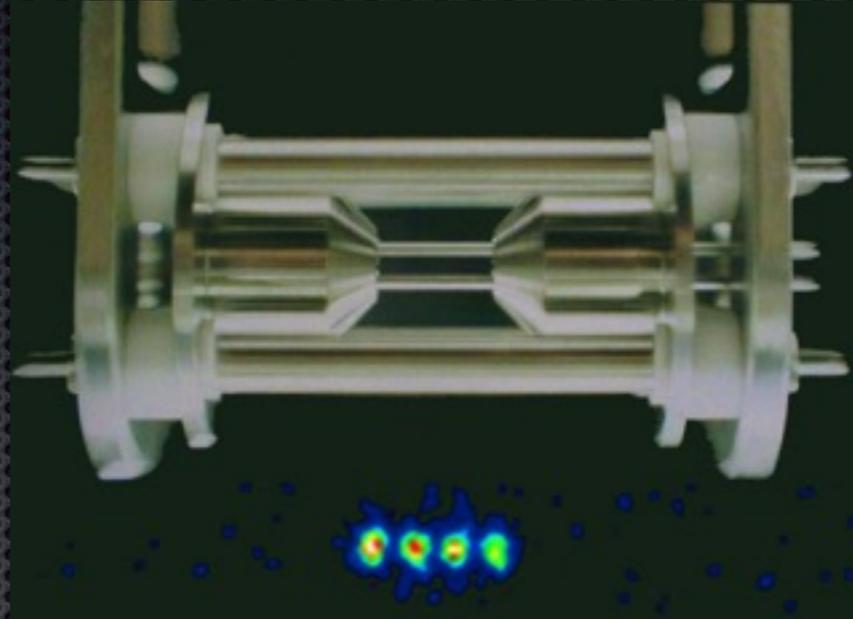
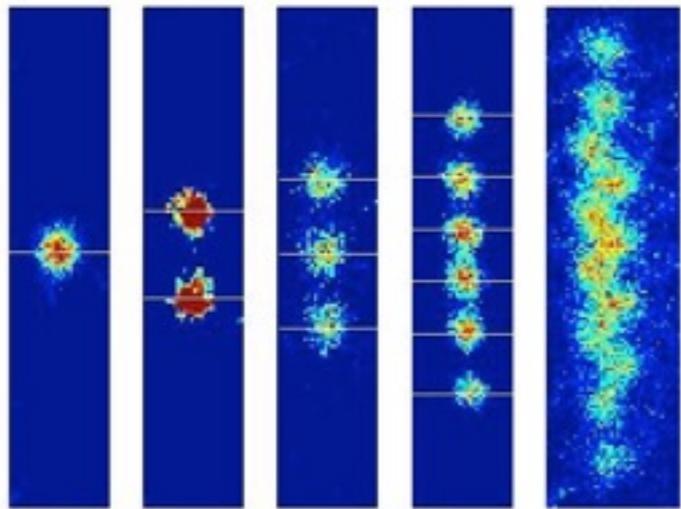


Figure 2 Interference pattern produced by C₆₀ molecules. **a**, Experimental recording (open circles) and fit using Kirchhoff diffraction theory (continuous line). The expected zeroth and first-order maxima can be clearly seen. Details of the theory are discussed in the text. **b**, The molecular beam profile without the grating in the path of the molecules.

box superconduttore

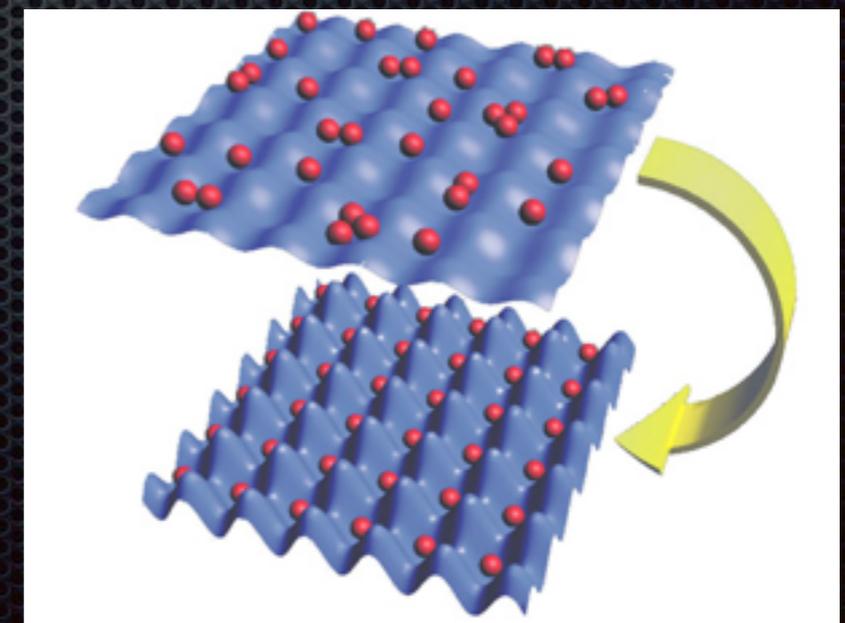
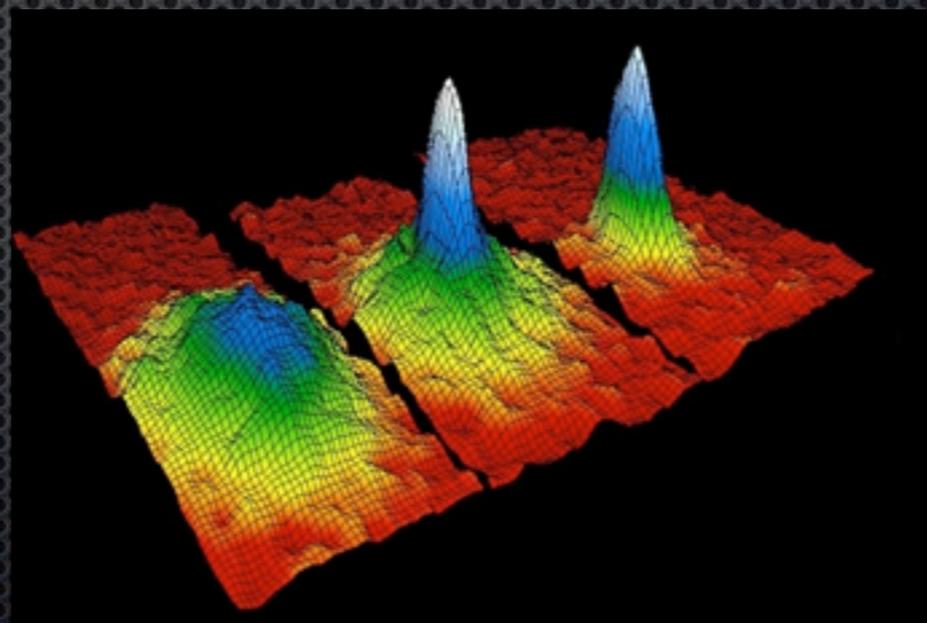
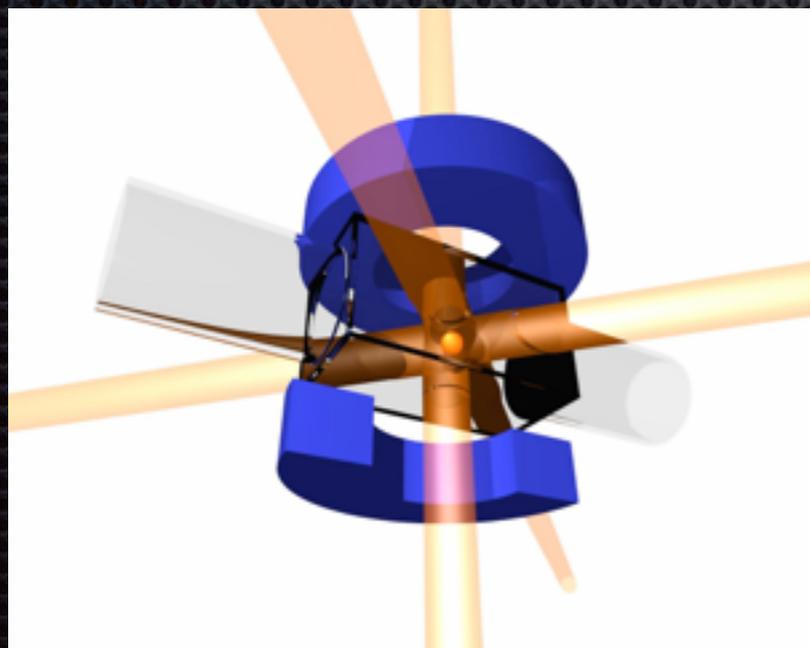
sistemi atomici



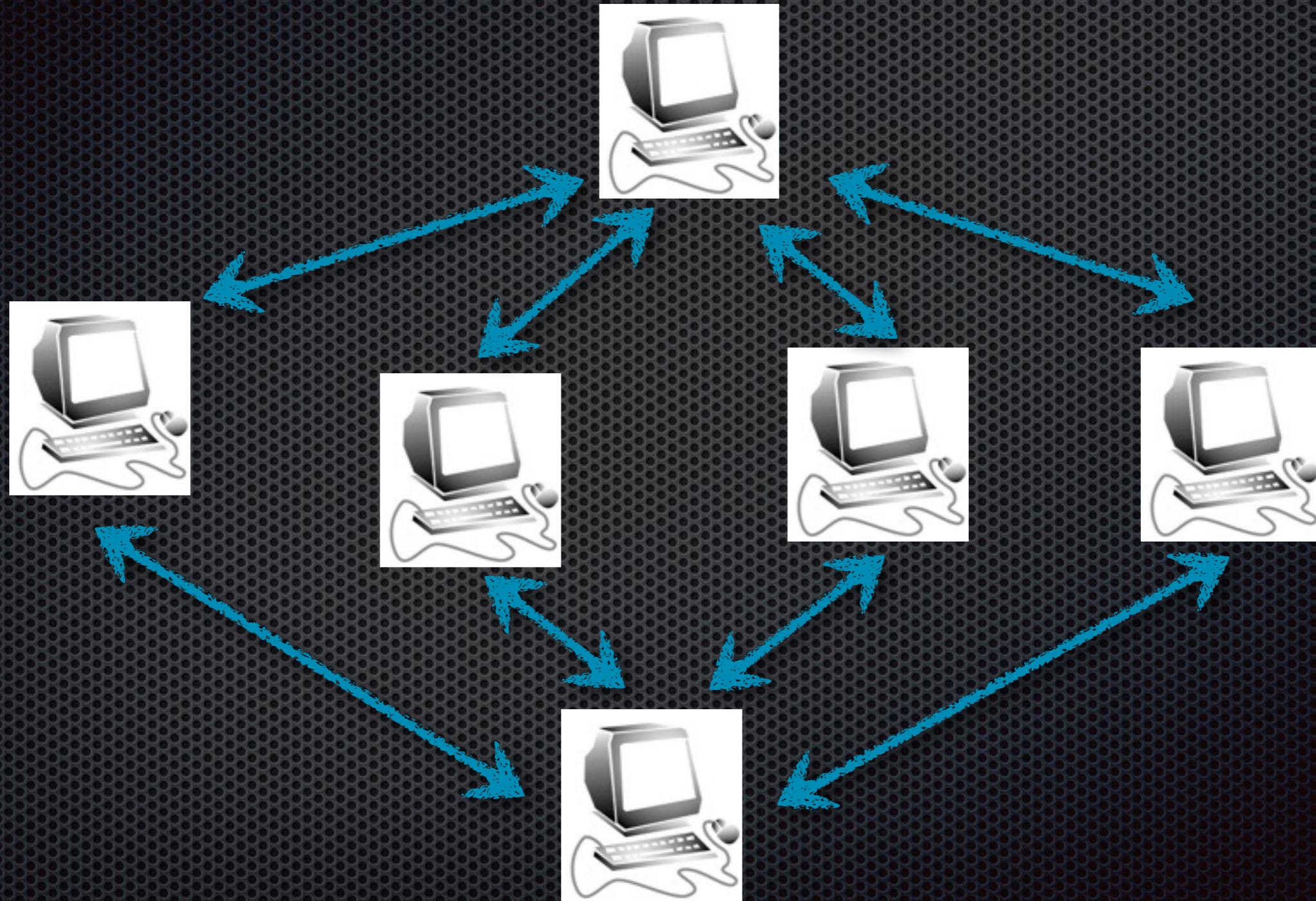
ioni in trappola

quantum
optomechanics

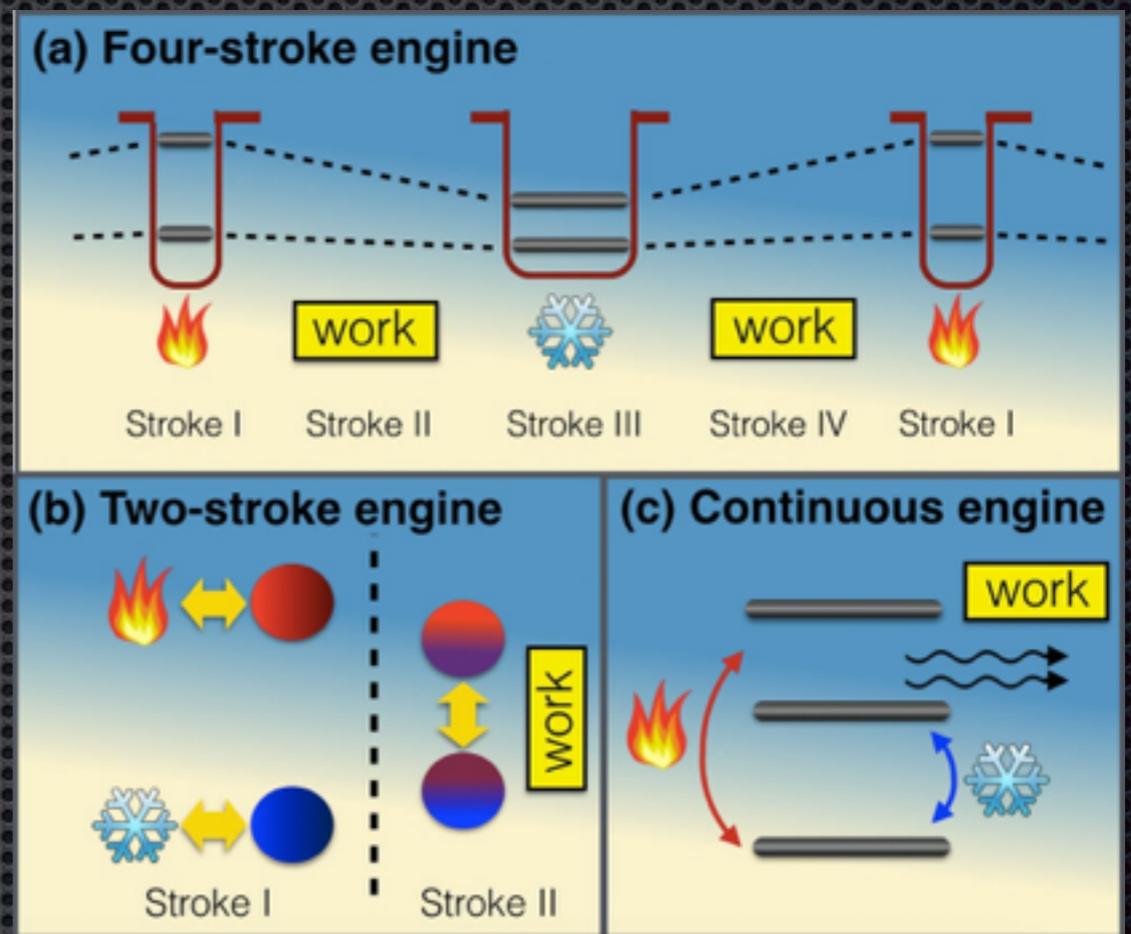
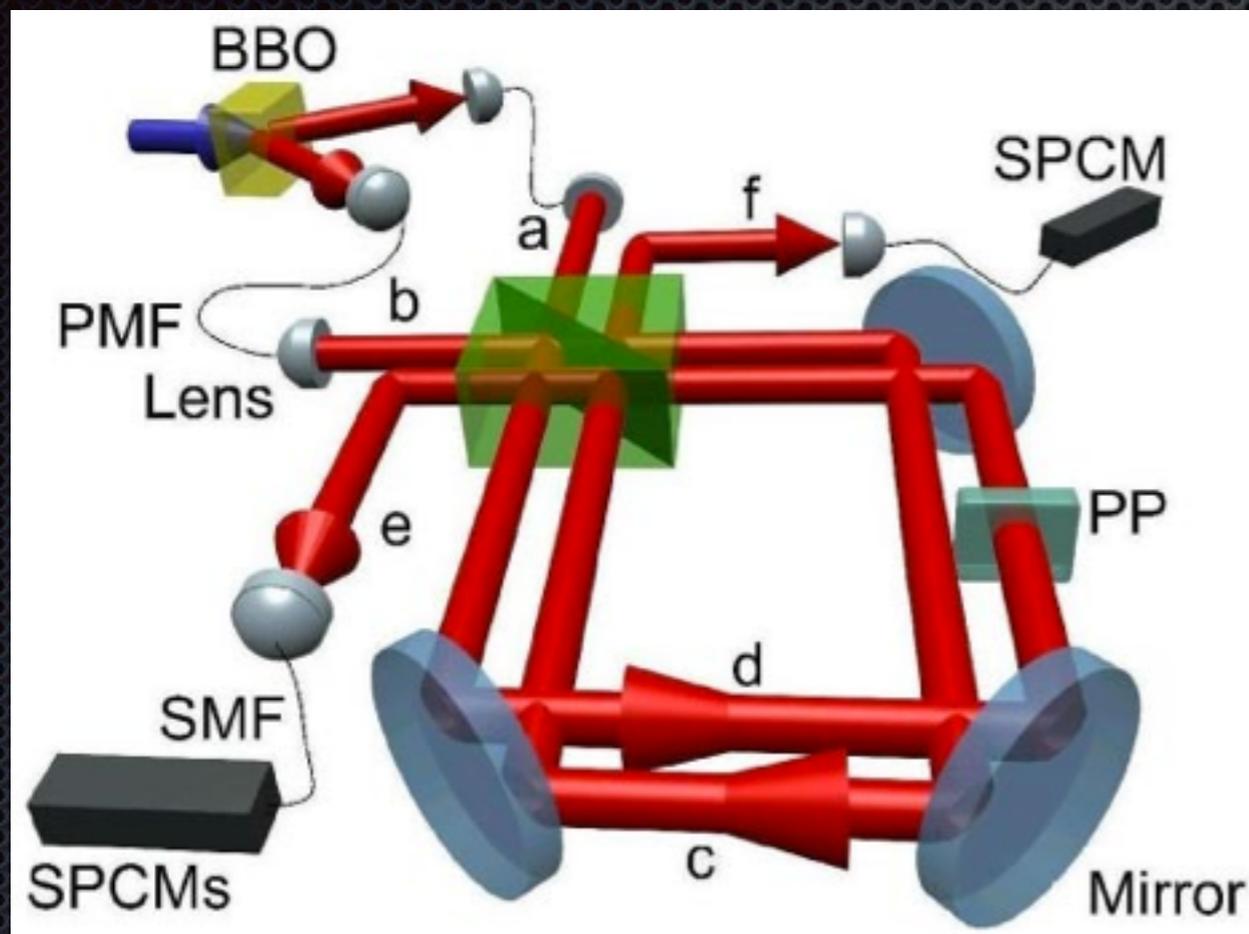
condensati di Bose Einstein



interferenza quantistica e computers quantistici



quantum metrology



quantum thermodynamics

CON CHI COLLABORIAMO

NEST



National Enterprise
for nanoScience and
nanoTechnology



Queen's University
Belfast

Φ xford
Physics



Turun yliopisto
University of Turku



Centre for
Quantum
Technologies

thp

Institute for
Theoretical Physics
University of Cologne



universität
wien



UNIVERSITÀ
DELLA CALABRIA

Imperial College
London


Duke
UNIVERSITY



NETWORKS NAZIONALI ED INTERNAZIONALI

