

Objective ICT-2011.9.9: Quantum Information and Communication Technologies (QICT)

“How the combination of quantum mechanics and information theory offers new concepts and resources for computing and communications.”

- Funding/Instruments: 15 MEuro, STREPs & IPs
7 MEuro, ERA-NET Plus
- Closing of Call 9 (tbc): 17 April 2012
- Contact:** [David.Guedj \(at\) ec.europa.eu](mailto:David.Guedj(at)ec.europa.eu)



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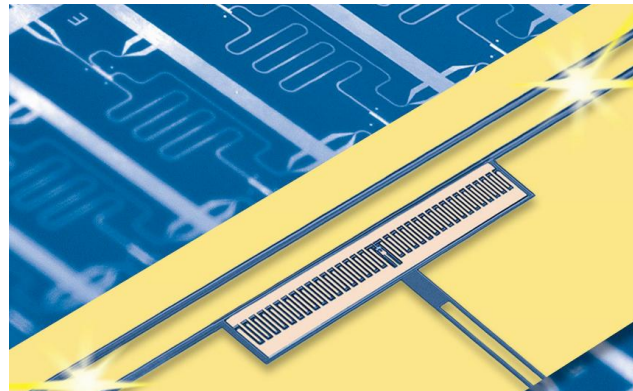
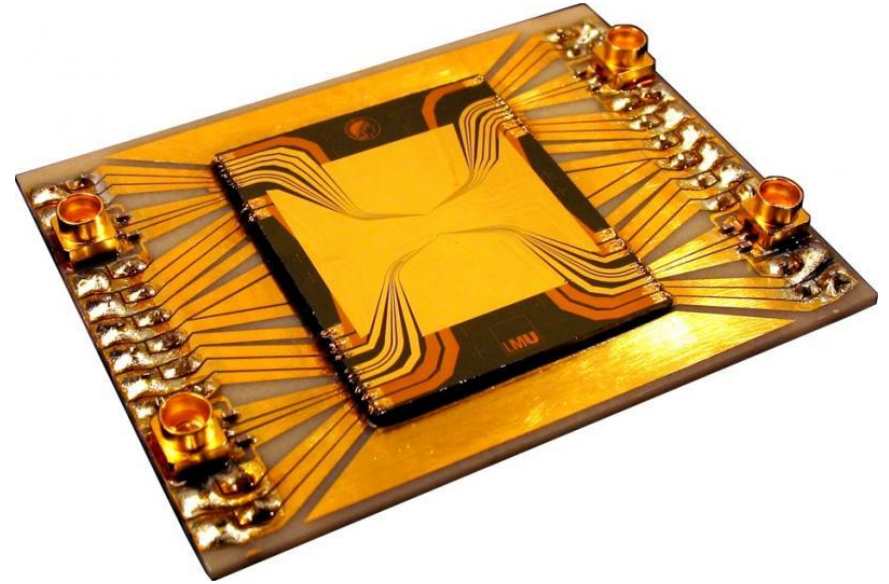
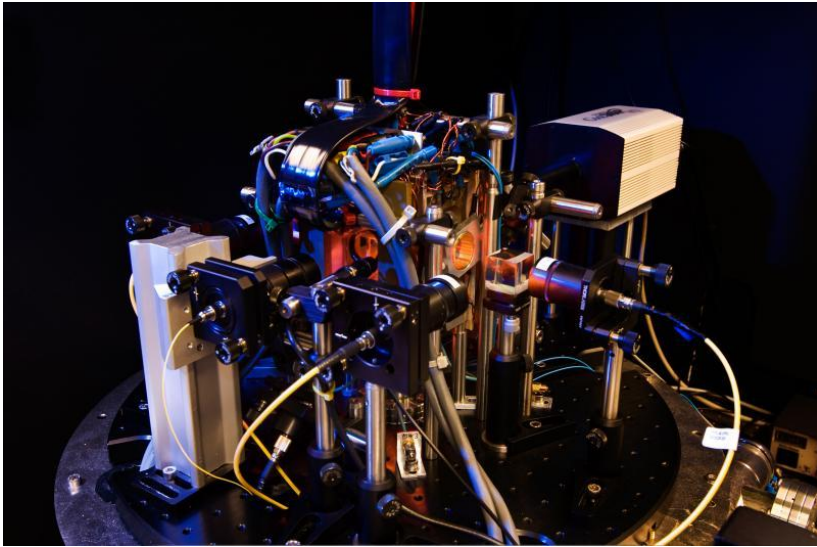
Target Outcomes

Push forward the boundaries of our knowledge in the Quantum-ICT area by demonstrating

- Quantum simulators capable to operate on many-particle systems
- Hybrid systems linking different quantum bit realizations.
- Novel quantum devices exploiting entanglement and quantum coherence as a resource, such as quantum sensing, imaging, measurement and communication
- Enabling methods and technologies to support aforementioned outcomes



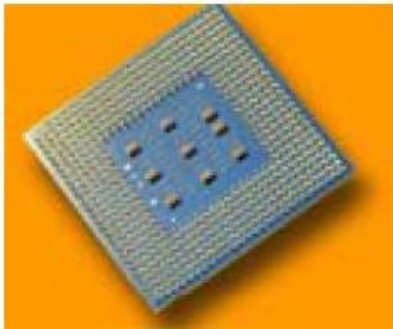
QICT: Illustration of experimental realisations



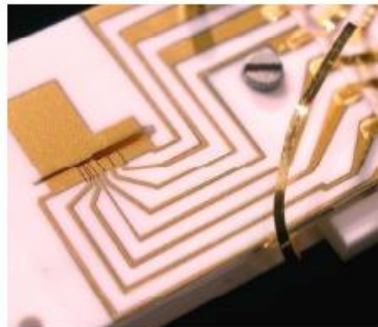
QICT: A Vision for Quantum Computing

Processors

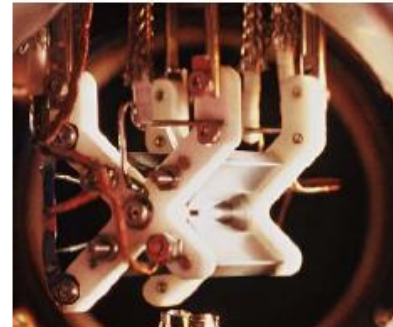
classical processors



quantum processors



Boulder



Innsbruck



Quantum Information and Communication Technologies (QICT)

Expected Impact

- Better understanding of the dynamics of complex systems and phenomena
- Easier design of novel artificial materials with tailored properties through quantum simulators and computers
- Extended distances of secure quantum links through quantum repeaters
- Entanglement assisted sensors and metrology or other QICT achievements with higher performance



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ERA-NET-Plus action

- **Target outcome**

- A joint call for proposals on QICT
- To be funded through an ERA-NET-Plus action between national and/or regional grant programmes.

- **Expected Impact**

- Closer cooperation and greater alignment between the participating national/regional research programmes

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Websites

- **QICT website**

http://cordis.europa.eu/fp7/ict/fet-proactive/qict_en.html

- **Background document**

ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/fet-proactive/qift-consult09-05_en.pdf