

Alberto Ronzani

Curriculum vitae et studiorum

✉ alberto@aronza.com
📄 aronza.com

Biographical Data

Born September 1st, 1984 Bergamo (Italy)
Gender Male
Citizenship Italian citizen

Career

2018– **Research Scientist**, *VTT - Nanoelectronics*, Espoo, FI.
2016–2018 **Research Associate**, *Aalto University School of Science*, Espoo, FI.
2014–2016 **Research Associate**, *C.N.R. - Istituto Nanoscienze*, Pisa, IT.
2011–2013 **Ph.D. Student**, *Scuola Normale Superiore*, Pisa, IT.

Education

2019 **Ph.D. in Physics**, *Scuola Normale Superiore*, Italy, *70/70 cum laude*.
Corso di Perfezionamento in Fisica della Materia Condensata
2010 **M.Sc. in Physics**, *Università di Pisa*, Italy, *110/110 cum laude*.
Laurea Specialistica in Scienze Fisiche - Curriculum di Fisica della Materia

Current Research Interests

Quantum Technology

- Hybrid superconductor/CMOS devices
- Qubits and Circuit Quantum Electrodynamics
- Superconducting interferometers
- Andreev-mediated transport phenomena in mesoscopic diffusive weak links

Terahertz Photonics

- Non-periodic photonic resonators for Quantum Cascade Laser sources
- Bolometric detectors with ultra-low Noise Equivalent Power

Languages

Italian	C2	<i>Native</i>
English	C2	<i>Cambridge ESOL First Certificate in English (2003)</i>
Finnish	A1	<i>Aalto University: Finnish for beginners 1A,B (2017)</i>

Selected Publications

- 2018 *Tunable photonic heat transport in a quantum heat valve*
Nature Physics, 14(10):991
Ronzani, Karimi, Senior, Chang, Peltonen, Chen, Pekola
- 2017 *Phase-driven collapse of the Cooper condensate in a nanosized superconductor*
Physical Review B, 96(21):214517
Ronzani, D'Ambrosio, Virtanen, Altimiras, Giazotto
- 2014 *Photonic quasi-crystal terahertz lasers*
Nature Communications, 5:5884
Vitiello, Nobile, Ronzani, Tredicucci, Castellano, Talora, Li, Linfield, Davies
- 2011 *Structure and X-ray spectrum of crystalline P3HT from DFT-vdW calculations*
Physica Status Solidi B, 248(6):1360
Colle, Grosso, Ronzani, Zicovich-Wilson

Other Publications

- 2019 *Utilization of the superconducting transition for characterizing low-quality-factor superconducting resonators*
Applied Physics Letters, 115(2):022601
Chang, Karimi, Senior, Ronzani, Peltonen, Goan, Chen, Pekola
- 2018 *Josephson photodetectors via temperature-to-phase conversion*
Physical Review Applied, 9(5):054027
Virtanen, Ronzani, Giazotto
- 2016 *Spectral characteristics of a fully superconducting SQUIPT*
Physical Review Applied, 6(5):054002
Virtanen, Ronzani, Giazotto
- 2016 *Hyperuniform disordered terahertz Quantum Cascade Laser*
Scientific Reports, 6:19325
Degl'Innocenti, Shah, Masini, Ronzani, Pitanti, Ren, Jessop, Tredicucci, Beere, Ritchie
- 2015 *Normal metal tunnel junction-based SQUIPT*
Applied Physics Letters, 107(11):113110
D'Ambrosio, Meissner, Blanc, Ronzani, Giazotto
- 2014 *Highly-sensitive Superconducting Quantum-Interference Proximity Transistor*
Physical Review Applied, 2(2):024005
Ronzani, Altimiras, Giazotto
- 2014 *Balanced double-loop mesoscopic interferometer based on Josephson proximity nanojunctions*
Applied Physics Letters, 104(3):032601
Ronzani, Altimiras, Giazotto
- 2013 *Micro-superconducting quantum interference devices based on V/Cu/V Josephson nanojunctions*
Applied Physics Letters, 103(5):052603
Ronzani, Baillergeau, Altimiras, Giazotto
- 2012 *Anisotropic molecular packing of soluble C60 fullerenes in hexagonal nanocrystals obtained by solvent vapor annealing*
Carbon, 50(3):1332
Colle, Grosso, Ronzani, Gazzano, Palermo

Accrued Expertise

- Cleanroom fab techniques
 - Chemical hoods, solvents, acids and bases
 - Semiconductor etching, wet and ICP-RIE
 - UV Photolithography, including CAD photomask design
 - Scanning Electron Microscope (SEM) imaging
 - Electron Beam Lithography (EBL), suspended mask
 - Metallic thin film deposition via thermal and electron beam evaporation
 - Plasma ion milling
 - Process integration for complex mix&match wafer-level production runs
- Cryogenics and vacuum systems
 - $^3\text{He}/^4\text{He}$ dilution refrigerators
 - ^3He sorption refrigerators
 - Closed-cycle He coolers
 - Ultra-high vacuum systems ($< 10^{-9}$ Torr)
 - Leak detection
- Electronics and measurement
 - Electronic audio-band filtering for ultra-low temperature devices
 - Low-level/low-noise current or voltage measurements
 - RF probing of superconducting circuits and qubits
 - Digital acquisition and automation
- Computing techniques
 - Electromagnetic fields in antennas and photonic devices (F.E.M.)
 - Time-dependent response of photonic devices (FDTD method)
 - Applied mathematical methods for scientific computation
 - Unix system administration
 - Programming: C/C++, Python, LabVIEW, MATLAB, bash, GPU/multithread
 - Publishing: \LaTeX , Inkscape, GIMP, Microsoft Office
- Publishing
 - Peer review: referee for Applied Physics Letters
 - Typesetting: \LaTeX , Microsoft Office
 - Graphics: Inkscape, GIMP

Continued Education and Conferences

- Dec. 2018 **Speaker**, *Nanoscale and Microscale Heat Transfer VI*.
- Aug. 2017 **Poster**, *ULT 2017: Frontiers of Low Temperature Physics*.
- Sept. 2016 **Speaker**, *Tunneling two-level systems and superconducting qubits workshop*.
- Sept. 2014 **Speaker**, *Società Italiana di Fisica: 100th Congress*.
- Sept. 2014 **Invited Speaker**, *International Quantum Cascade Lasers School and Workshop*.
- Sept. 2013 **Attendee**, *International Conference on Infrared, Millimeter and Terahertz Waves*.
- May 2013 **Attendee**, *MPNS COST Action Training School – MP1204 TERA-MIR Radiation: Materials, Generation, Detection and Applications*.
- Sept. 2012 **Attendee**, *International School of Physics and Technology of the Matter*.
- Sept. 2012 **Attendee**, *International Quantum Cascade Lasers School and Workshop*.