Applied Superconductivity-relevant Highlights in APS *Physics*

March 28, 2017 (HP123). The APS online weekly highlights *Physics* of March 27, 2017, contain three superconductivity or applied-superconductivity-relevant highlights of most recent papers in APS journals, these are:

1. A Viewpoint by Johannes Fink "Microwave Quantum States Beat the Heat" on a new quantum communication protocol that is robust in the presence of thermal noise, thus paving the way for all-microwave quantum networks. Two groups independently developed quantum-state transfer protocol via a noisy waveguide cooled to 4 K. Two stationary superconducting qubits (1 and 2) at a temperature of 20 mK are each controllably coupled to a "flying qubit" in the waveguide. See http://physics.aps.org/articles/v10/32.

2. A Viewpoint by József Fortágh and Andreas Günther "Sensing Magnetic Fields with a Giant Quantum Wave" on a refined version of a Bose-Einstein-condensate microscope that detects static magnetic fields near the surface of a chip with unprecedented sensitivity and over a wide temperature range. Its flux sensitivity beats the present "gold standard" SQUID scanning microscopes by 2-3 orders of magnitude. See http://physics.aps.org/articles/v10/30.

3. A Synopsis by Katherine Wright "Mimicking the Brain with Superconductors and Light" on a proposed computer system potentially capable of performing 10 times more operations than the human brain while requiring just 20 W of energy. Its artificial neuron consists of a superconducting TES "wire" connected to a LED. Absorption of photons switches TES to normal state thus activating the LED, which in turn can activate another neuron. See http://physics.aps.org/synopsis-for/10.1103/PhysRevApplied.7.034013.

We like to recommend these highlights and the original papers to our readers.