

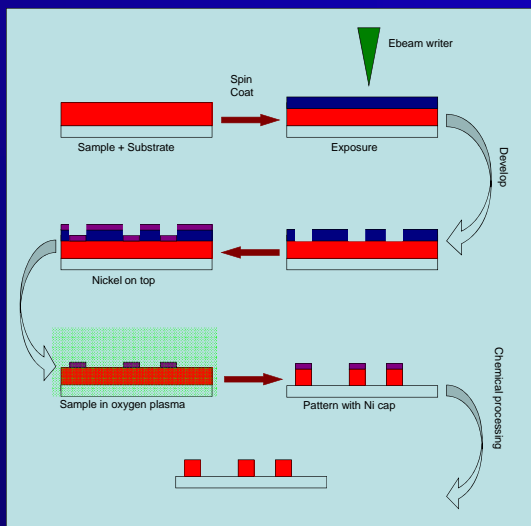
1. Institut Néel, CNRS and Université Joseph Fourier, 38042 Grenoble, France

2. IMEP-LAHC, Grenoble INP – Minatec, 38016 Grenoble, France

3. IPNL, Domaine scientifique de la Doua, Bâtiment Paul Dirac, 69622 Villeurbanne, France

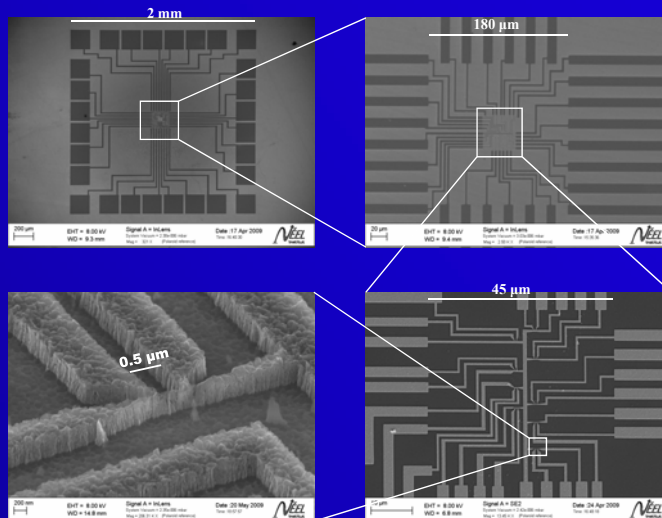
4. Fraunhofer IAF, Tullastraße 72, 79108 Freiburg, Germany

## I. The Process



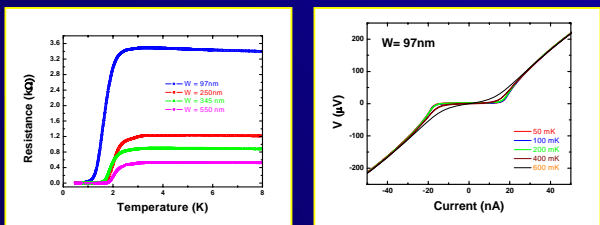
The step by step schematic of the fabrication process starting from the diamond thin film to the nanostructured sample.

## II. Thin Lines of Diamond

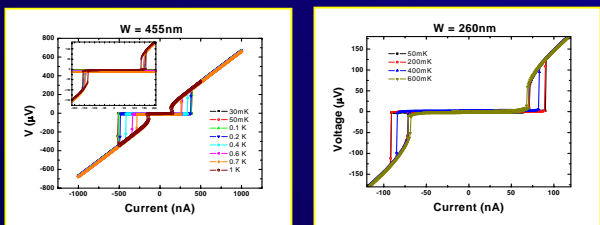


SEM images of a typical sample containing lines of various widths for transport measurements.

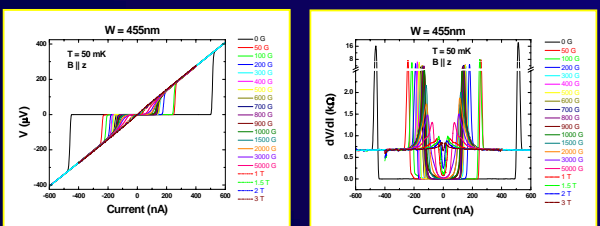
## III. Characterisation



R vs T curves for 550, 345, 250 and 97nm wide wires. Right hand panel is the IV curves of 97nm wide wire.

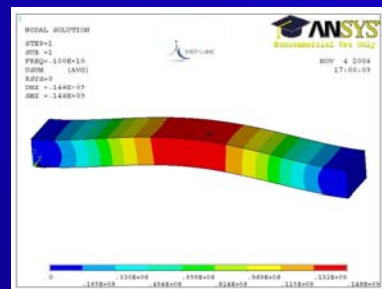


IV curves for 455nm and 260nm wide wires with varying temperature.



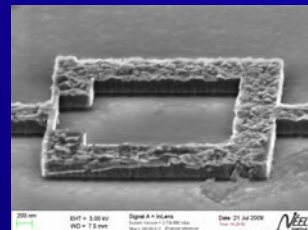
IV and dV/dI curves for 455nm wide wire with varying magnetic field.

## IV. Finite Element Simulation



Numerical simulation of a doubly clamped beam with a resonance frequency of 1 GHz

## V. Future Prospects



Quantum devices made from superconducting diamond (eg. SQUID)