

## Superconducting nanowire quantum interference device based on Nb ultrathin films deposited on self-assembled porous Si templates

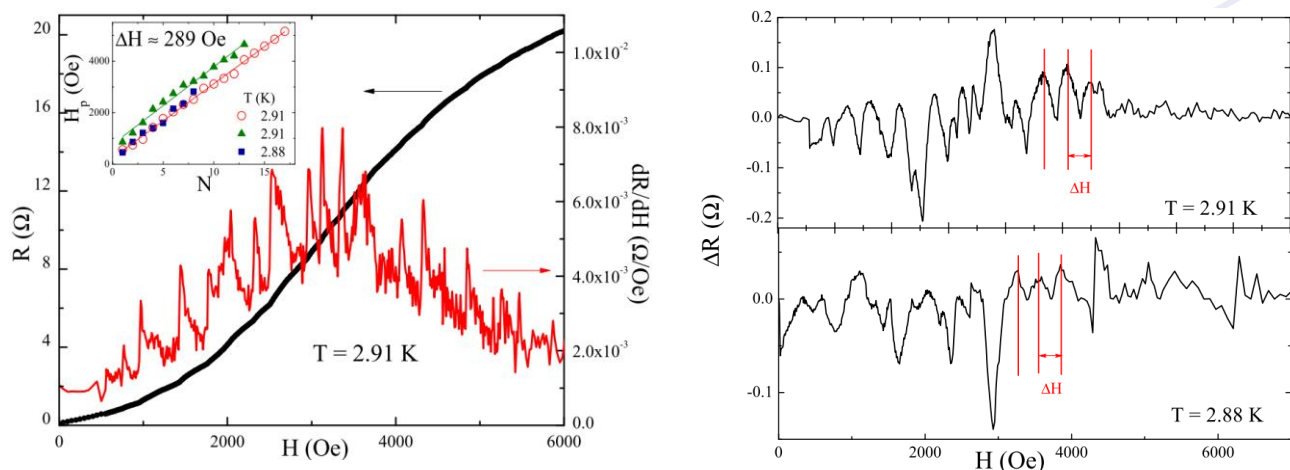
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NANOTECHNOLOGY 25, 425205 (2014)

Magnetoresistance oscillations were observed on networks of superconducting ultrathin Nb nanowires presenting evidence of either thermal or quantum activated phase slips. The magnetic transport data, discussed in the framework of different scenarios, reveal that the system behaves coherently in the temperature range where the contribution of the fluctuations is important.



Left: Magnetoresistance transitions,  $R(H)$ , (left axis) and first  $R(H)$  derivative,  $dR/dH(H)$ , (right axis) for the sample 9 nm thick grown on a porous substrate with pore diameter (inter-pore distance) 10 nm (40 nm). Inset: peaks positions  $H_p$ , vs index number,  $N$ , extracted from the  $dR/dH$  curve and  $\Delta R$  curves on the right.  $\Delta H$  is the slope of the best fit lines. Right: after the subtraction of a smooth background the  $R(H)$  curves for the same sample reveal the presence of periodic peaks of period  $\Delta H$ , as highlighted by the red lines.

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