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(54) **RADIO-FREQUENCY REFLECTOMETRY
SCANNING TUNNELING MICROSCOPE**

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(57) **ABSTRACT**

An RF reflectometry scanning tunneling microscope is suit-
able for observing a surface of an object, and includes a probe
that cooperates with the object to form a tunneling resistor
therebetween, an RF resonant circuit that cooperates with the
tunneling resistor to form a LCR resonant circuit including an
inductor connected to a parallel connection of a capacitor, a
resistor and the tunneling resistor, an RF signal generator that
outputs an RF signal via a directional coupler to the LCR
resonant circuit, and an RF signal measuring device that
generates a scanning result associated with the surface of the
object based on a reflected RF signal resulting from reflection
of the RF signal by the LCR resonant circuit.

14 Claims, 16 Drawing Sheets

