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An alternative approach to the determination of the local density of states of a conducting sample CHRIS HELLENTHAL, STEFAN KOUIJ, HAROLD ZANDVLIET, University of Twente — Traditionally, open-loop scanning tunnelling spectroscopy (STS) has been used to determine the local density of states (LDOS) of conductive samples in order to obtain information about their electronic structure. Here, we present an alternative scheme to determine the LDOS of a conducting sample via STS measurements. Through the use of a numerical fitting algorithm, the LDOS can be reconstructed from either a measured tunnelling current or a measured tip-sample distance as a function of the applied bias voltage between tip and sample. The requisite measurements can be performed in open-loop or closed-loop configuration, making it a versatile and widely accessible method.

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