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Abstract for an Invited Paper
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Measurement of Quantum Phase-Slips in Josephson Junction Chains¹

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Quantum phase-slip dynamics in Josephson junction chains could provide the basis for the realization of a new type of topologically protected qubit [1] or for the implementation of a new current standard [2]. I will present measurements of the effect of quantum phase-slips on the ground state of a Josephson junction chain. We can tune in situ the strength of the phase-slips. These phase-slips are the result of fluctuations induced by the finite charging energy of each junction in the chain. Our measurements demonstrate that a Josephson junction chain under phase bias constraint behaves in a *collective* way [3]. I will also show evidence of coherent phase-slip interference, the so called Aharonov-Casher effect. This phenomenon is the dual of the well known Aharonov-Bohm interference.

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