

Abstract Submitted  
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**Probing coupling mechanism between microscopic two-level system and superconducting qubits**<sup>1</sup> YANG YU, ZHENTAO ZHANG, Nanjing University — We propose a scheme to clarify the microscopic nature of Josephson qubits interacting with the two-level systems, coming from microscopic defects located inside insulation layer. We found that the sensitivity of the generally used spectral method in phase qubit is not sufficient to evaluate the exact form of the coupling. On the contrary, our numerical calculation shows that the coupling strength changes remarkably with flux bias for a flux qubit, providing a useful tool to investigate the coupling mechanism between the two-level systems and qubits.

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