

Resonant Tunneling Behavior in Ion-Enhanced Field Emission

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OVERVIEW

We focus on how resonant tunneling ion-enhanced emission is affected by various parameters (applied field F and ion position L), with the vision of designing a high performance emitter by matching the supply function to resonant states.

IMPORTANCE

Results of this study can be used to 'design' cathodes that will interact positively with these resonant states, it will be of great interest to the field of microplasmas, microwave generation, and even particle accelerators.

APPROACH

We determine the tunneling transmission coefficient by solving Schrödinger's equation and analyze resonant states using a perturbation approach.

