

Hybrid structures for low resistance and high transmittance electrodes

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Low-dimensional metallic nanostructures hold unique electrical properties making them ideal components for electrodes. Unfortunately, when assembled in bulk films, their transparency vanishes, rendering them less interesting for opto-electronic applications.

On the other hand, graphene and other 2D materials are transparent, albeit their electrical characteristics when processed from dispersions are not exciting.

In this work we have combined the best of these two worlds by matching the two components. High transmittance and low sheet resistance can be achieved by tuning the composition and thickness of the films. We will also provide a proof-of-concept by applying them as transparent electrode in a prototypical opto-electronic device.

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