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LETTER

# Multilayer ReS<sub>2</sub> lateral p–n homojunction for photoemission and photodetection

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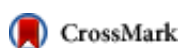
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## Abstract

In this paper, a multilayer ReS<sub>2</sub> p–n homojunction is fabricated on an oxidized Si substrate, and its photoemission under a forward bias and its photodetection under a reverse bias are reported for the first time. Au nanoparticles were used to make lateral p–n homojunctions. The device shows room temperature photoemission in the IR range, and in the photodetector mode, it shows a 0.41 A/W responsivity under illumination by a 660 nm red laser.