**A model of radiative recombination in n-type porous silicon-aluminum Schottky junction**

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**Abstract.** It is common knowledge that silicon emits visible light in its breakdown condition, but it is also known to have low efficiency. In this letter, we report an in-depth analysis of data for light emitting devices based on porous silicon. A theoretical model of luminescence from reverse biased p-np-n junction has been developed for this n-type porous silicon–aluminium Schottky junction to explain the higher efficiency of these electroluminescence devices in comparison with that from a reverse biased p-np-n junction structure. Through this model, it is possible to understand the steps that are necessary to improve the efficiency of porous-aluminum Schottky junction.

**Keywords:** Schottky barriers; P-N junctions; Silicon; Luminescence; Light emitting diodes.

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