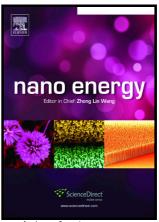
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#### **ACCEPTED MANUSCRIPT**

# Recycling PM<sub>2.5</sub> carbon nanoparticles generated by diesel vehicles for supercapacitors and oxygen reduction reaction

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#### **Abstract**

Particulate matter (PM) pollution has become a serious environmental problem, especially in developing countries, owing to its severe threat to human health. Particularly, airborne  $PM_{2.5}$  (mean aerodynamic diameter  $\leq 2.5 \mu m$ ) particles are extremely harmful, because the tiny particles can enter human respiratory system and even penetrate into circulatory system. Herein, we propose an effective strategy to recycle  $PM_{2.5}$  carbon nanoparticles generated by diesel vehicle engine for the applications of clean energy. After thermal treatment and purification, the  $PM_{2.5}$  derived carbon nanoparticles show a diameter distribution between 25–40 nm,

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