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Temperature dependence of Nickel Oxide effect on the optoelectronic properties of porous silicon

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Highlights

- The treatment of porous silicon (PS) with nickel oxide (NiO) decreases the reflectivity significantly indicating an obvious morphology variation.
- FTIR analysis showed a substitution of Si-H bonds to Si-O-Si and Si-O-Ni after the thermal annealing.
- Annealing the treated NiO/PS at 400°C leads to a noticeable improvement of the photoluminescence (PL) intensity.
- A blueshift was obtained in the PL spectra due to the decrease of silicon nanocrystallites size after a high thermal oxidation for temperatures exceeding 400°C.

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