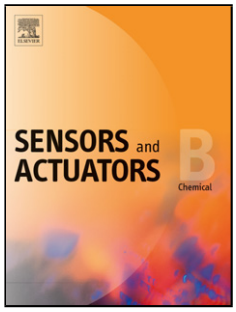

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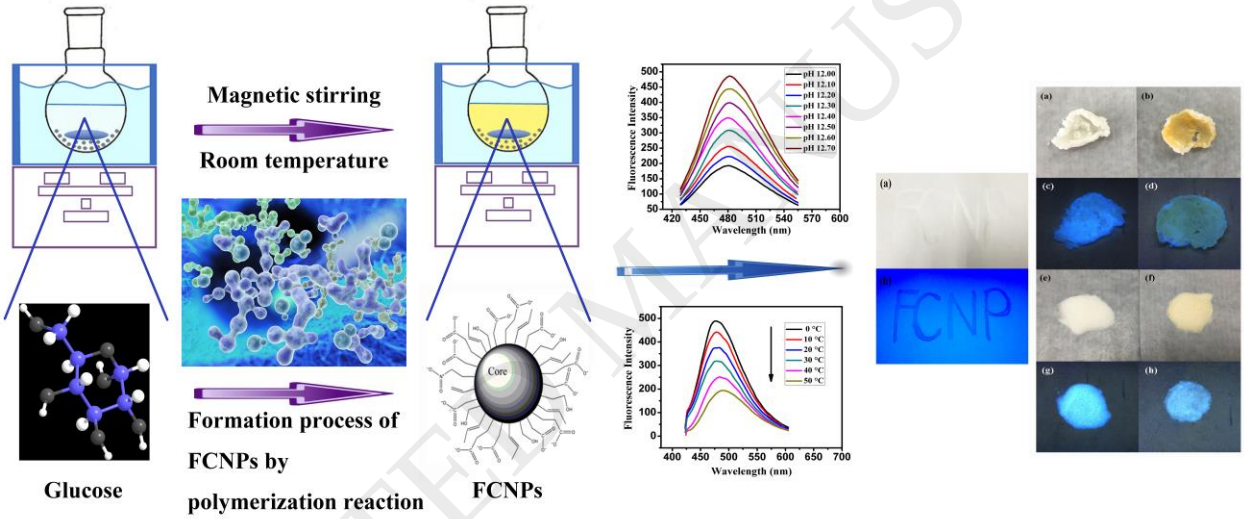
Calcium-doped fluorescent carbon nanoparticles: spontaneous thermal synthesis, pH-sensitive fluorescence off-on, and mechanism

Siqiao Li [ac], Deli Xiao [a], Donghao Liu [a], Hua He [ab] *

[a] Department of Analytical Chemistry, China Pharmaceutical University, 24 Tongjia Lane, Nanjing 210009, Jiangsu Province, China.
E-mail: jcb315@163.com; Fax: +86 025 83271505; Tel: +86 025 83271505
[b] Key Laboratory of Drug Quality Control and Pharmacovigilance, Ministry of Education, China Pharmaceutical University, Nanjing 210009, China
[c] School of Chemistry and Chemical Engineering, Nanjing University, Nanjing 210093, China

Graphical Abstract:



Highlights

- Spontaneous thermal polymerization and carbonization route assisted by calcium oxide was proposed to product FCNPs.
- Effective fluorescent nanosensors for the pH and temperature were established.
- The formation mechanism dramatically influencing the nucleation and growth of FCNPs were meticulously discussed.