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Biomedical Applications of Nanodiamonds in Microbiology

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Propositions

Biomedical Applications of Nanodiamonds in Microbiology

Neda Norouzi

1. Fluorescent Nanodiamonds reveal no antibacterial effect in the concentration range relevant for biosensing applications [this thesis]
2. Reduction of colony formation of *S. aureus* due to interaction with nanodiamonds does not result from toxicity, but aggregation [this thesis]
3. Nanodiamonds can be introduced as a tool to measure free radicals in live organisms and microorganisms including bacteria [this thesis]
4. T_1 measurements reveal the magnetic noise of free radical existence surrounding the NV^- center [this thesis]
5. Relaxometry allows us to measure the dynamic of free radical generation in real-time [this thesis]
6. Relaxometry has proven its advantages but there is room for improvements [this thesis]
7. Mechanically or chemically engineering of surface properties of black silicon or black Diamond is a promising approach to directly repel bacteria [this thesis]
8. “Knowledge only progresses by making mistakes as fast as possible.”
— *John Wheeler physicist*
9. “KINDNESS” always wins!