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Two-laser spectroscopy and coherent manipulation of color-center spin ensembles in silicon carbide

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1)

Color centers in SiC are a promising platform for all-optical quantum information applications in solid state, due to their variety, good optical accessibility at telecommunication wavelengths, and long coherence times - all in an industrially mature host material.

2)

Spin-related absorption magneto-spectroscopy is a rich and powerful characterization technique, which can quickly resolve transitions to below MHz resolution, regardless of inhomogeneity in the optical transitions.

3)

Inhomogeneous broadening of optical transitions is not a deal-breaker, and could become a resource, when applying color center ensembles to quantum information science.

4)

An experimental design course should be mandatory for all non-theoretical physics master students, teaching the careful soft- and hardware building that many PhD students now have to master on the fly. The course should be programmed as an obligatory part of the master research, where currently its contents should be taught, but usually are not.

5)

All cars should be equipped with dash cams. Consequently, drivers should be able to easily send footage of traffic violations to law enforcement, turning every car into a deterrent to obnoxious drivers, dramatically improving traffic safety.

6)

People sharing opinions online show behavior resembling swarming. Such a swarm is highly resistant to dissenting views, facts, and even common sense, and its emergent intelligence is thus lower than that of its constituents.

7)

There should be a curriculum of video games throughout both elementary and high school. The educational value is so strong and diverse, and so widely recognized to exist, that it's baffling this has not been widely implemented yet.