Magnetic Nanoparticles for Medical Imaging

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As the nanotechnology attracts huge research attention, magnetic nanoparticles (MNPs) rise with many applications mainly in medical treatment and imaging areas but also in other applications such as water treatment and catalysis. On this work we'll be focusing into their medical imaging and treatment applications with materials science as a guide to get an interdisciplinary approach. This work is going to cover how magnetic resonance imaging works and the importance of MNPs. The expansion of MNPs in medical applications is due to the enormous variety of their structures, design, which is typically a magnetic core surrounded by a bio functional coating. We will analyze the criteria to build and stabile functional MNPs not only for magnetic resonance imaging but treatment as well, since these particles can serve multifunctional roles. Biological functionality will be explained with the help of surface science, chemistry and biological point of view. MNPs do have few flaws which can properly solved, one of them is the issue of toxicity so a good characterization is needed. [1]
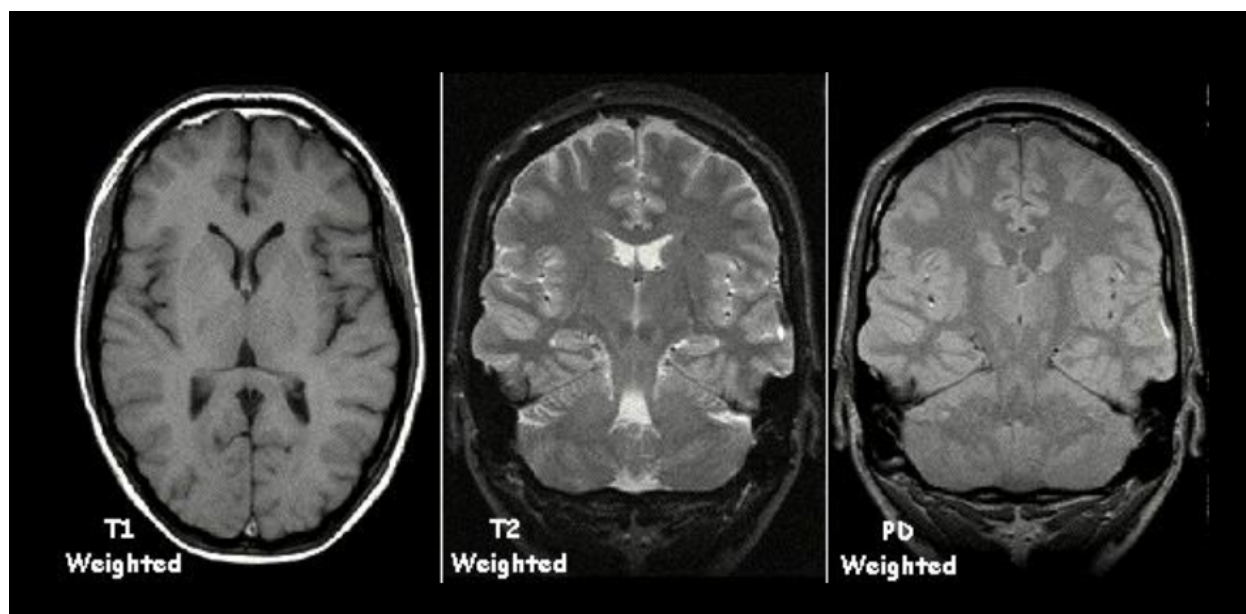

Figure 1. Example of magnetic resonance imaging, with a homoginius magnetic field applied elements/molecules/particles can sent a signal witch will make an image of the scanned by magnetic field area.

References

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https://en.wikipedia.org/wiki/Magnetic_nanoparticles

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