

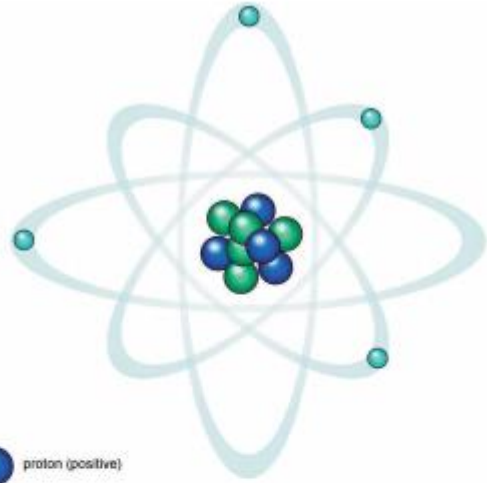
آموزش هفتگی MRI




فایل ضمیمه قسمت اول

کاری از کیانوش حسینی

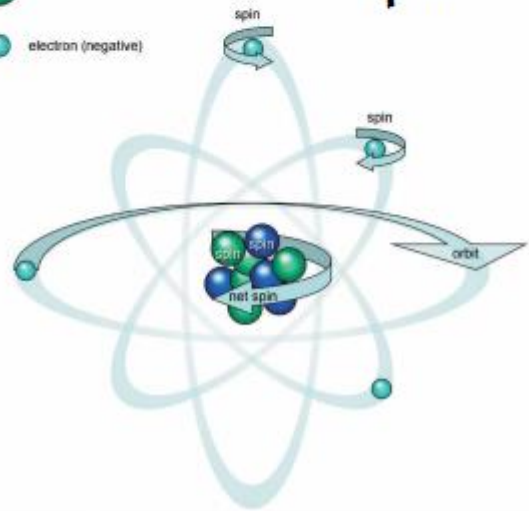
پرتو رسانه

تصاویر موجود در این ضمیمه از کتاب MRI in Practice, 4th edition گرد آوری شده است.



-  proton (positive)
-  neutron (no charge)
-  electron (negative)

اتم

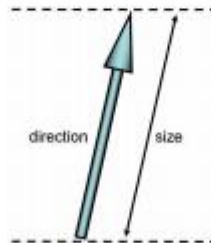




magnetic moment

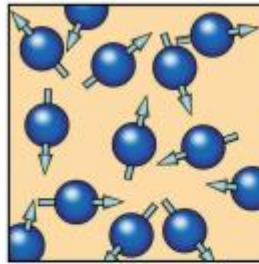


bar magnet

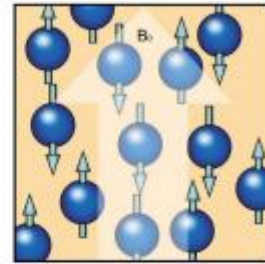


magnetic vector

The magnetic moment of the hydrogen nucleus.

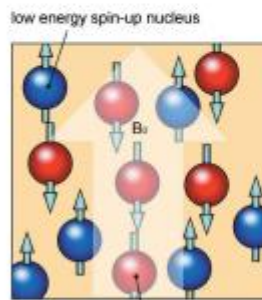


random alignment
no external field

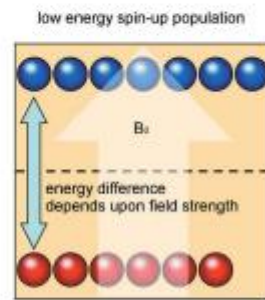


alignment
external magnetic field

Alignment – classical theory.

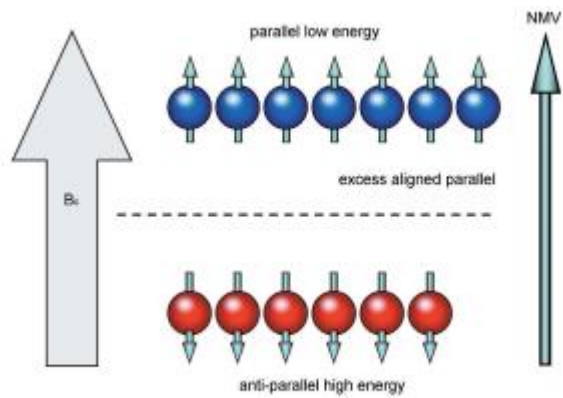


low energy spin-up nucleus
high energy spin-down nucleus

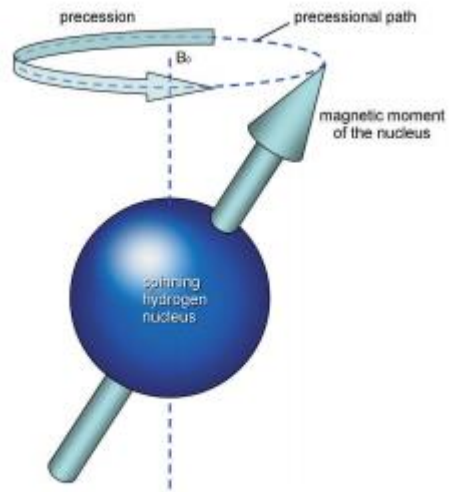


low energy spin-up population
high energy spin-down population

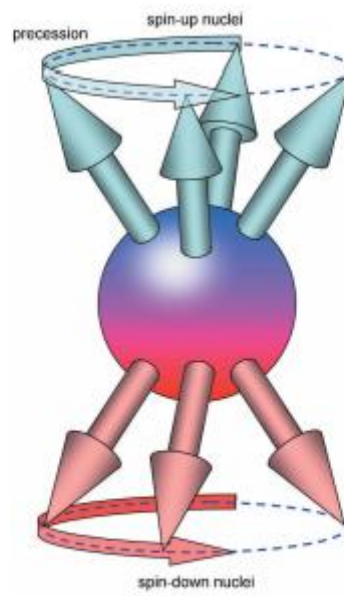
Alignment – quantum theory.



The net magnetization vector.



Precession.



Precession of the spin-up and spin-down populations.