Quantum Mechanics

Magnetism

Problem 1.- Explain how the exchange force conspires to give us the magnets that we graciously attach to our refrigerators.

Solution: The exchange force favors electrons in high spin states. For example, the triplet state as opposed to singlet for two-electron systems.

The alignment of many spins in magnets gives them a macroscopic magnetic moment that attracts the iron in your refrigerator.