



UNIVERSITÀ DI PISA

Electromagnetic Radiations and Biological Interactions

***“Laurea Magistrale” in Biomedical Engineering
First semester (6 credits), academic year 2011/12***

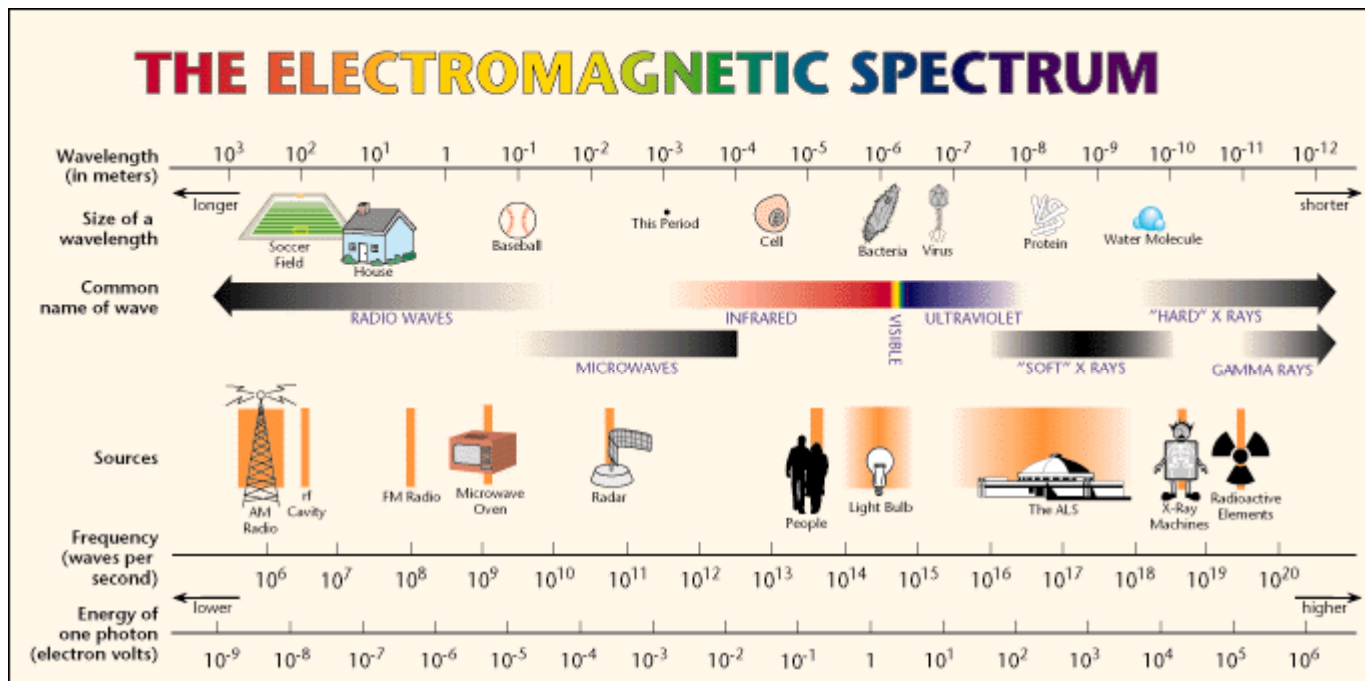
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Course Introduction

Edited by Dr. Anda Guraliuc

EM sources

1. Electromagnetic spectrum
2. Antennas for communication systems and radars: near field and far field regions, characteristic parameters for transmitting antennas (antenna datasheet), field probes
3. Industrial applications and home electronic equipments
4. Power line induction (50Hz or 60Hz)
5. EM in Biomedical: therapeutic and diagnostic applications



Lecture Content

- **Math and Physics background**
 - **Maxwell's equations**
- **Electromagnetic fields: propagation**
- **EM characterization of biological tissues**
 - **Electromagnetic fields: radiation**
 - **SAR dosimetry**
 - **Guidelines and regulations**
 - **EM exposure systems**