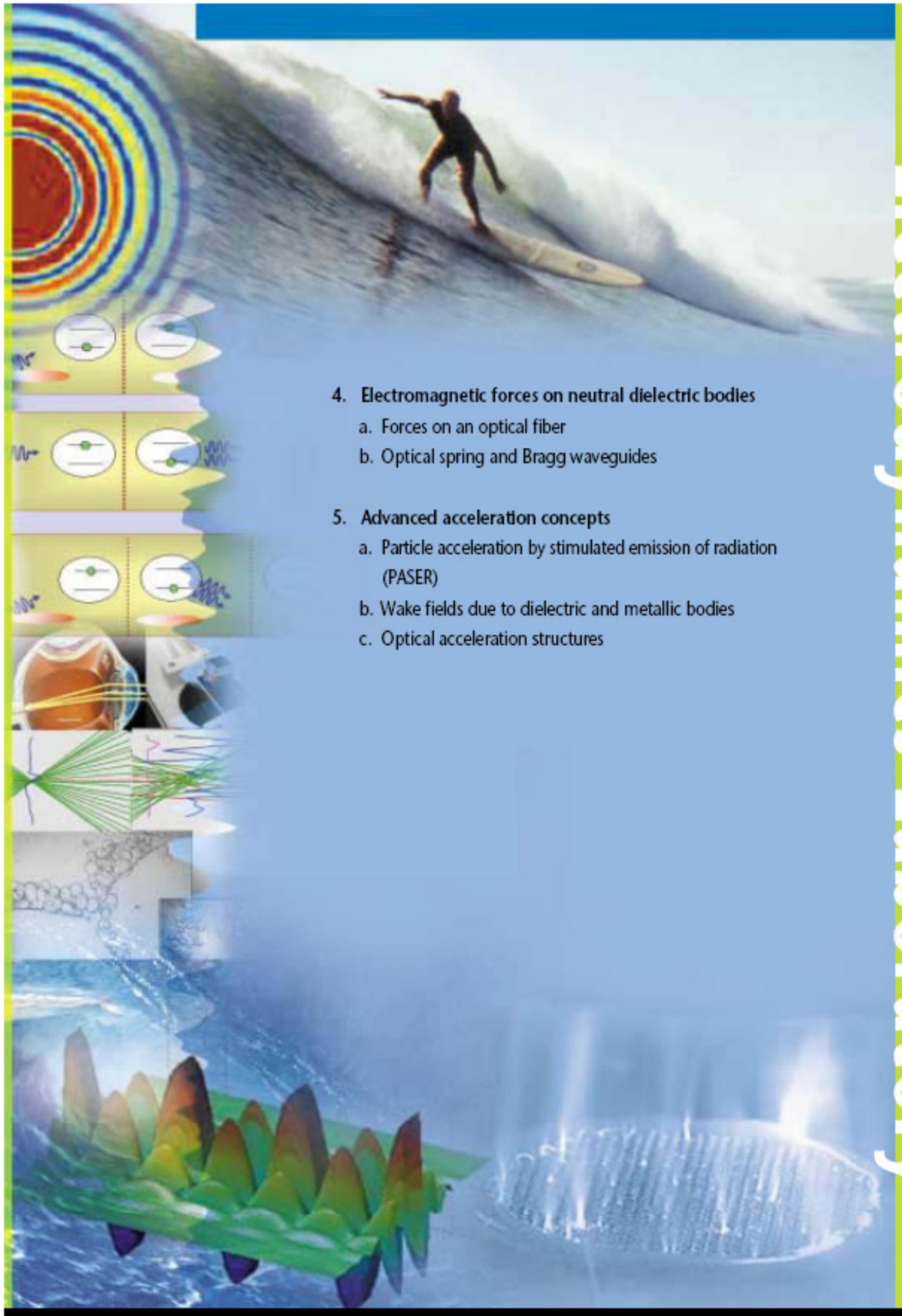
Electrodynamics

In the framework of the Laboratory a variety of electromagnetic phenomena are investigated as well as the interaction of electromagnetic fields or waves with matter including electrons, dielectric materials and living tissue. Among the topics:

1. **The interaction of electromagnetic fields and waves with the human body:**
   a. Investigation of the effect of microwave radiation on the eye lens.
   b. Effect of very low frequency magnetic fields on neural cells.

2. **Sources of free electrons and their characterization**
   a. Optimal field emission from a periodic metallic surface
   b. Enhanced field emission in the vicinity of a triple-point (vacuum, dielectric and metal).
   c. Electron emission from ferro-electric ceramics.

3. **Sources of electromagnetic radiation**
   a. High power microwave sources
   b. Compact radiation sources
   c. X-ray sources of radiation based on free electrons



4. **Electromagnetic forces on neutral dielectric bodies**
   a. Forces on an optical fiber
   b. Optical spring and Bragg waveguides

5. **Advanced acceleration concepts**
   a. Particle acceleration by stimulated emission of radiation (PASER)
   b. Wake fields due to dielectric and metallic bodies
   c. Optical acceleration structures

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http://www.technion.ac.il/electrodynamics