IFUAP

Curso Corto
"Topological photonics and phononics"

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Del 2 al 4 de octubre de 2019
Auditorio del Instituto de Física, Edificio IF1
15:00 - 17:00 hrs.

Programa

1. Topological insulators, definition and examples.
2. Surface states with unidirectional propagation.
3. Time-reversal symmetry. Reciprocity in mechanics, statics, electrodynamics, and acoustics.
4. Nonreciprocal Faraday Effect in gyrotropic medium.
5. Bulk and surface states in crystal.
6. Bidirectional and unidirectional surface states.
7. Gaussian curvature of a surface.
8. Mean curvature. Gauss-Bonnet theorem. Topological invariant.
9. Berry phase.
10. Berry phase as gauge invariant. Berry flux.
11. Chern number.
12. Topology of energy bands of photonic crystals.
13. Topologically nontrivial energy bands. Dirac cone.
14. Experiments on topologically protected unidirectional waveguides.
15. What is acoustic diode?
16. Does dissipation violated reciprocity?
17. Examples of nonreciprocal acoustic transmission in systems with broken T – and P – symmetry.

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