

# Programma delle lezioni di dottorato: Spontaneous symmetry breakdown in the Standard Model & beyond

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# Description of the lectures I

- Lecture 1: 2 hours  
Action, relativistic transformations, fields
- Lecture 2: 2 hours  
Heisenberg, Schrodinger and Dirac representations
- Lecture 3: 2 hours  
SSB in non-relativistic physics 1
- Lecture 4: 2 hours  
SSB in non-relativistic physics 2
- Lecture 5: 2 hours  
SSB in relativistic physics 1
- Lecture 6: 2 hours  
SSB in relativistic physics 2

# Description of the lectures II

- Lecture 7: 2 hours  
Goldstone Model & Goldstone Theorem
- Lecture 8: 2 hours  
Higgs Mechanism & the SM
- Lecture 9: 2 hours  
Quadratic divergences in mass for scalar fields
- Lecture 10: 2 hours  
The Goldstone Miracle
- Lecture 11: 2 hours  
Implications for supersymmetry & beyond the SM