



# Examen de Grado

Para optar al grado de Magíster en Ciencia con Mención Física

## Lautaro Labarca Guajardo “Out of equilibrium dynamics in spin chains”

In this work, we study the out of equilibrium dynamics of a in general non-solvable nite spin-1 chain following a protocol of quantum quench. The specific model studied is the XY-spin-1 chain with single-ion anisotropy. We study the relevant time scales, the evolution of Loschmidt echo, observables and bipartite entropies. We identify signatures of a dynamical quantum phase transition. We also explore possible order parameters for characterizing the dynamics, and the role of the models parity symmetry on the mutual information distribution. We succeeded in identifying adequate order parameters characterizing the emerging dynamics. Additionally, we give a pedagogical introduction to central concepts of classical and quantum information theory, such as the Shannon entropy, mutual information and quantum discord.

### Comité de Tesis

Dr. Guillermo Romero Huenchunir, Tutor, Universidad de Santiago de Chile.

Dr. Sebastián Allende Prieto, Universidad de Santiago de Chile.

Dr. Fernando Méndez Ferrada, Universidad de Santiago de Chile.

Dr. Pedro Orellana Dinamarca, Universidad de Técnica Federico Santa María.

MIÉRCOLES, 29 DE DICIEMBRE DE 2021 | 16:00 H  
VÍA PLATAFORMA ZOOM

<https://l.linklyhq.com/l/gkDH>

ID de la reunión: 823 0449 9566

Contraseña de la reunión: 370656