



UNIVERSITÀ
degli STUDI
di CATANIA



DIPARTIMENTO DI FISICA E ASTRONOMIA
“ETTORE MAJORANA”

DOTTORATO DI RICERCA IN FISICA
ANNO ACCADEMICO 2022/2023

TITLE

Femtoscopia Technique for Data Analysis

2 CFU

Teaching staff

Nome Cognome: Emanuele Vincenzo Pagano

Email: epagano@lns.infn.it

Office: LNS

Telephone: +39 095 542 275

Reception hours: upon student request

Program of the course:

1. Historical introduction from the stellar to the nuclear interferometry
 - a. Amplitude interferometry
 - b. Intensity interferometry: the HBT effect
 - c. Femtoscopia from the high to intermediate energy regimes
2. Application to Dynamical and Structure physical cases in the Fermi energy domain
 - a. Proton-proton correlation functions
 - b. IMF-IMF correlation functions

Bibliography:

- [1] R. Hanbury Brown and R. Q. Twiss, *Nature* 177:27 (1956)
- [2] R. Hanbury Brown and R. Q. Twiss, *Nature* 178:1046 (1956)
- [3] G. Goldhaber et al., *Phys. Rev. Lett.* 3:181 (1959)
- [4] S. Pratt, *Phys. Rev. Lett.* 5:3:1219 (1984)
- [5] W. Bauer, C-K. Gelbke and S. Pratt, *Annu. Rev. Nucl. Part. Sci.* 1992. 42:77-100