



UNIVERSITÀ
degli STUDI
di CATANIA

DIPARTIMENTO DI FISICA E ASTRONOMIA

“ETTORE MAJORANA”

DOTTORATO DI RICERCA IN FISICA

CICLO XLI A.A. 2025/2026

Femtoscscopy and two-particle correlations in subatomic physics

2 CFU

Teaching staff

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Office:

Reception hours:

Program of the course:

- Introduction to interferometry and heavy-ion collisions
- Two-particle correlations: intensity interferometry of emitting sources
- Complex fragment correlations
- Detectors and experimental techniques
- Resonance decays and correlations: nuclear thermometers and invariant mass spectroscopy

Bibliography:

Scientific paper and slides provided by the teacher

1. R. Hanbury Brown and R. Q. Twiss, *Nature* 177, 27 (1956)
2. G. Baym, *Acta Phys. Pol.* B29, 1839 (1998)
3. M. Lisa et al., *Ann.Rev.Nucl.Part.Sci.*55:357-402 (2005)
4. G. Verde et al., *Eur. Phys. Journal A*30, 81 (2007)
5. S.E. Koonin, Proton pictures of high-energy nuclear collisions *Physics Letters B*. 70: 43-47 (1977)
6. J. Pochodzalla et al., *Phys. Rev.* C35, 1695 (1987)
7. W.P. Tan et al., *Phys. Rev. C* 69, 061304 (Rapid Communications) (2004)
8. Ad. R. Raduta et al., *Phys. Lett.* B705, 65 (2011)