

# How theoretical condensed matter physics developed in Rome

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Italian physicist Carlo Di Castro, professor emeritus at the University of Rome Sapienza, Italy, shares his recollections of how theoretical condensed matter physics developed in Rome, starting in the 1960s. Luisa Bonolis, a researcher at the Max Planck Institute for the History of Science in Berlin, Germany, invited Di Castro to reflect upon his research career, which he did in an interview published in *European Physical Journal H*.

In this unique document, Di Castro talks about his upbringing during the second World War. He also explains how this childhood experience later influenced his philosophy, which he aptly summarises as follows: "the fear of the unknown must be overcome through knowledge and reason." Ultimately, this approach guided the career choices that led him to become a [condensed matter](#) physicist.

In this interview, Di Castro covers his research focus over the years, ranging from the phenomenology of superfluid helium and superconductors, renormalisation groups applied to critical phenomena and quantum systems, strongly correlated electron systems, and [high-temperature superconductors](#).

He also discusses fundamental problems in [condensed matter physics](#), such as the derivation of scaling, the metal-insulator transition and the interaction effects on disordered electron systems beyond the Anderson localisation, as well as the existence of heterogeneous states in cuprates.

Di Castro gives a unique, personal account of the evolution of these research fields since the 1960s. He relates the encounters he had with those who would go on to become the next generation of condensed matter physicists and explains his involvement in setting up the 'Rome Group', an authority in his field, together with Claudio Castellani.

He concludes by sharing his experiences working on research policy, and by relating his disappointment with the deterioration of the research system due to the political and economic crisis affecting Italy.

**More information:** C. Di Castro and L. Bonolis (2013), "Personal remembrances of the beginnings of theoretical condensed matter physics in Rome," *European Physical Journal H*, [DOI: 10.1140/epjh/e2013-40043-5](https://doi.org/10.1140/epjh/e2013-40043-5).

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