Journal of Physics: Condensed Matter

OBITUARY

Obituary for Professor Sandro Massidda

To cite this article: Alessandra Continenza and Luciano Colombo 2019 *J. Phys.: Condens. Matter* **31** 270202

View the article online for updates and enhancements.

You may also like

- Lorna Arnold
  Richard Wakeford
- Bert Winkler
- From the history of Soviet Mathematics
  A F Lapko and L A Lyusternik

IOP ebooks™

Bringing together innovative digital publishing with leading authors from the global scientific community.

Start exploring the collection–download the first chapter of every title for free.

This content was downloaded from IP address 110.225.168.205 on 17/09/2022 at 09:11

Journal of Physics: Condensed Matter

J. Phys.: Condens. Matter **31** (2019) 270202 (2pp)

https://doi.org/10.1088/1361-648X/ab14bf

Obituary

Obituary for Professor Sandro Massidda

Alessandra Continenza
Dipartimento di Scienze Fisiche e Chimiche, Università degli Studi dell'Aquila, Via Vetoio, 10, I-67100 L'Aquila, Italy
E-mail: alessandra.continenza@univaq.it

Luciano Colombo
Dipartimento di Fisica, Università di Cagliari, Cittadella Universitaria, Monserrato Cagliari, I-09042, Italy

Born in Bonnannaro (Sassari, Sardinia, Italy) on 9 July 1955, where his father was serving as a veterinarian, he completed his education in Cagliari (Italy), eventually earning a MSci degree in Physics (Laurea cum laude) when he was only 23 years old. A few years after, he completed his PhD in Theoretical Condensed Matter Physics at the International School for Advanced Studies (SISSA-ISA, Trieste, Italy) defending a thesis on a self-made linearized augmented plane wave code (LAPW). Next, Sandro spent some years as post-doc in the group of Professor Arthur J Freeman at Northwestern University in Evanston (Chicago, USA), a pioneer in *ab initio* computational methods and the father of the full-potential LAPW (FLAPW) method. There, within Freeman's group, he joined the effort to develop the most accurate realization of the density functional approach (the FLAPW code), and also had the chance to work on breaking-through materials, such as the high temperature superconductors. This first result was an anticipation of his scientific quality, maintained throughout his active career.

In 1989 he moved to the 'Institute Romand de Recherche Numérique en Physique des Matériaux' of the Ecole Polytechnique Federal in Lausanne (Switzerland), where he worked with Professor A Baldereschi until 1992. He then joined the Sardinian Research Center (CRS4) and after a few months was appointed Associate Professor at Università Federico II in Naples. In the fall of 1993 he moved to Università di Cagliari where, shortly afterwards (2000), became Full Professor in Condensed Matter Physics.

His main scientific efforts were devoted to the study of superconductors and in this field he gave his most notable contribution to the development and implementation of the superconducting density functional theory, in collaboration with Professor EUK Gross (Freie University Berlin, Germany). This truly remarkable achievement allowed the first ab-initio prediction, on a completely parameter-free framework, of the superconducting properties of many materials (MgB_2, H, Li, K and Al under pressure, and Pb).

Sandro's scientific interests have been quite broad: they brought him to investigate many other fields in condensed matter physics, including the study of semiconductor interfaces and tailoring of band-offset at semiconductor heterojuctions and metal/semiconductor interfaces (indeed a very important topic for condensed matter theory in the 1990s); the development of density functional theory predictions beyond ground state properties within GW approximation in metal oxides, (the first achievement of this kind within an all-electron approach); the development of novel computer codes to interpret, still on an *ab initio* basis, several different experimental results such as positron annihilation, muon spin-relaxation spectroscopy (μSR), photoemission spectroscopy, transport properties in solids.

To summarize, we can say that Sandro dedicated most of his efforts in *ab initio* predictions, in close contact and fruitful exchange with experiments.

His scientific production has been terrific, high quality, quantitatively massive, and with large impact, as testified by his presence in the list of most cited Italian scientists worldwide. Even more importantly, his research paved the way to new insights and achievements.

Although Sandro's dominant interest was in scientific research, he never shirked teaching and institutional service.

Throughout his service at Cagliari University, he has professed both basic teaching at the Faculty of Engineering and specialized teaching for the BSc/MSc degree in Physics and Materials Science (mainly 'Introduction to condensed matter physics' and 'Superconductivity').

Even though reluctant in some ways (everything that was not strictly 'physics' seemed to him a useless distraction of energy), he has carried out institutional assignments with commitment and dedication. In particular, he was for some years the Director of the local

© 2019 IOP Publishing Ltd Printed in the UK

Figure 1. Professor Sandro Massidda.

Research Unit of the National Institute for the Physics of Matter and the Coordinator of the BSc/MSc program in Physics.

Finally, his presence at the academic bodies of the University was, even if somewhat suffered, always attentive and punctual. He has never lacked an opinion, often expressed with subtle wit, nor has he ever failed to spend himself for the development of the physics of matter in Cagliari.

Finally, Sandro was the mentor of not so many students, but all of them have been of excellent quality, all of them followed by him with great attention and professionalism. Those, who have been lucky enough to graduate or earn a PhD under the guidance of Sandro have in turn become active members of the international community in theoretical condensed matter physics.

He will be surely remembered for his incredible zest for life, his scientific passion, his unselfishness and his great humanity that he managed to successfully spread among all his collaborators.

ORCID iDs

Alessandra Continenza https://orcid.org/0000-0002-6169-2448
Luciano Colombo https://orcid.org/0000-0001-5335-4652