

PERSONALIA**José Emílio Fernandes Tavares Ribeiro**

(on his 65th birthday)

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On the 17 September 2016 José Emílio Fernandes Tavares Ribeiro celebrated his 65th birthday.

Emílio Ribeiro was born in 1951 in Lisbon. He has dedicated his scientific life to Quantum Chromodynamics — the theory of strong interactions. In 1974 he graduated from Instituto Superior Técnico as an Electronic Engineer and in 1978 he finished his PhD thesis at the University of Oxford under the supervision of Richard Dalitz. A highlight from the thesis was a paper, that first appeared as a preprint of the National Institute of Scientific Research (CFMC-E-6-78), entitled "Microscopic calculation of the repulsive core in the elastic nucleon–nucleon scattering" where he derived the arising of a strong hard core repulsion as a result of the interplay between Pauli principle and the chromomagnetic interaction. In 1980 it was published in one of the most prominent European scientific journals *Zeitschrift für Physik C*.

In 1981, while at Nijmegen, Holland, he developed a universal mathematical method to calculate the space overlap kernel needed for hadron scattering and decay. This result was published in 1982 in *Physical Review D*. This mathematical tool was instrumental to predict, in a 1986 paper, published in *Zeitschrift für Physik C*, a set of low lying scalar resonances, the σ and the κ . The σ -resonance was to be experimentally established much latter. They were a consequence of coupled channels. The model was a phenomenological success, although it was quite unsatisfactory from the theoretical point of view as it failed to accommodate the physics of chiral symmetry.

In 1990, in a series of three papers, published in *Physical Review D*, he together with his PhD student Pedro Bicudo, layered in analogy to superconductivity, the theory of vacuum-like quark coherent states. This idea, in turn, led to the microscopic implementation of the mechanism for the spontaneous breaking of chiral symmetry, thus allowing to describe all the known low-energy theorems. A full fledged, quark field, chiral complying calculation of the ρ and ϕ resonances, arising from coupled channel calculations was also calculated and discussed.

In 1999 a paper showing that spontaneous breaking of chiral symmetry usually triggers the generation of a measurable anomalous magnetic moment for light-quarks was published in *Physical Review C*.

From 2000 onward he has remained interested in the field and has continued publishing in major journals and displaying the results in various international conferences.



José Emílio Fernandes Tavares Ribeiro

Another side of Emílio Ribeiro is his interest to science administration. Here he also has many achievements in this field. In particular, in 1985 he was responsible for the promotion and co-project of the new building for the Instituto de Física e Matemática (IFM). The built area of the building is 5000 square metres. The architect Nuno Leonidas was responsible for the architecture project. From 1986 to 1990 he was the director of the I&D magazine Futuro.

In 1990, he was the promoter, together with the journalist Nascimento Rodrigues and the researcher Gabriel Feio, of the ICTPOL, a nation wide research institution for materials in Portugal.

From 2004 to 2008 he was President of the research centre CFIF-Centro de Física das Interações Fundamentais — one of the most prominent research centres at Instituto Superior

Técnico in Lisbon, the technical faculty of the Technical University of Lisbon (at present, part of the University of Lisbon).

In 2008, he was a member of the Coordinating Committee for the Scientific Council of Instituto Superior Técnico.

In 2008, he was elected member of the Statutory Assembly of the Instituto Superior Técnico (2008) and in this condition was author of the Bill of Rights and Rules of Conduct for the Technical University of Lisbon in 2009.

From 2009 to 2012 and from 2012 to 2013 he was elected member of the Instituto Superior Técnico Council and in this condition was co-author of the strategy document for the fusion the Technical University of Lisbon with the University of Lisbon to form the new University of Lisbon in 2012. He was also a member of the technical committee for the redaction of the new statutes for the new University of Lisbon in 2013.

From 2013 to 2017 he was elected Council member of the University of Lisbon.

In 2014, he founded with other colleagues the research centre for advanced materials, Centro de Física e Engenharia de Materiais Avançados (CEFEMA).

In 2017, he founded with other colleagues the national Association for the Physics of Strong Interactions (AFIF).

From 2017 onwards many new accomplishments are expected.

A wide international cooperation involving scientists from both sides of Atlantic and, in general, from all parts of the globe, including Portugal, Brazil, Spain, the United Kingdom, the United States, Italy, Germany, Russia, the Netherlands, Austria, and so on was always a considerable concern of Emílio Ribeiro which resulted in many fruitful collaborations with many colleagues from all over the world. We, his colleagues and friends, wish him many long years of productive scientific activity, health and happiness, and many new scientific results and discoveries as well as many achievements in science administration.

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