Condensed Matter Physics, 2023, Vol. 26, No. 4, 47001: 1–2
DOI: 10.5488/CMP.26.47001
http://www.icmp.lviv.ua/journal

CONDENSED MATTER PHYSICS

Obituary

In memory of Professor Ralph Kenna (1964–2023)

Professor Ralph Kenna, a renowned scholar in the fields of statistical physics and complex system science, and a member of the CMP Editorial Board, passed away on October 26, 2023.

Ralph Kenna was born in Athlone, on the border between counties Roscommon and Westmeath, Ireland, on 27 August 1964. He attended Marist College, Athlone and then he studied in Trinity College Dublin obtaining his B.A. degree in Theoretical Physics in 1985 and M.Sc. in 1988. He completed his PhD (Dr. rer. nat.) at the University of Graz under supervision of Professor Christian Lang in 1993. Kenna was an EU Marie Curie Research Fellow at the University of Liverpool from 1994 to 1997 and at Trinity College Dublin from 1997 to 1999. He lectured at Trinity from 1998 until 2002 when he moved to Coventry University. In 2005, he co-founded the Applied Mathematics Research Centre at Coventry and founded the Statistical Physics Group there. In 2018, he joined the Fluid and Complex Systems Research Centre, at Coventry University. Kenna was Deputy Director of the Centre. In 2016 he co-founded and was a co-director of the $\mathbb{L}^4$ Collaboration and Doctoral College for the Statistical Physics of Complex Systems that joins the Universities of Coventry, Leipzig, and Lorraine with the Institute for Condensed Matter Physics in Lviv (ICMP). Professor Kenna pioneered the co-tutelle concept in the UK. He was a Fellow of the Institute of Mathematics and its Applications, Member of the Institute of Physics, Advisory Board Member of the Middle European Cooperation on Statistical Physics. In 2019, for his important scientific contributions as well as for his personal initiative in different forms of collaboration with Ukraine and his engagement in preparation of young scientists, he was conferred the title of *Doctor Honoris Causa* of the ICMP.

The scientific interests of Ralph Kenna mainly concern field theory, statistical physics of phase transitions, complex systems science (especially applied to Irish mythology and other epic narratives). In statistical physics, Kenna is noted for his development of scaling relations for logarithmic corrections. Together with his co-workers, he achieved a remarkable *tour de force* in the analysis of the standard scaling laws between critical exponents, and they proposed new general scaling relations among the correction exponents. Together with Bertrand Berche, he extended the renormalization group basis for finite-size scaling to higher space dimensions. They proposed a new form for hyperscaling, valid in high dimensions.

This led to the introduction of the new critical exponent ϙ (koppa) and its logarithmic counterpart $\hat{\text{ϙ}}$ to replace the standard prescription above the upper critical dimension. Due to his insights, the fundamental theory of phase transitions based on the partition function zeros analysis has been extended to a variety of models, also describing ordering on and in complex networks.

Ralph Kenna used his deep background in statistical physics and experience with efficient methodologies to conduct scientometric analyses of management and policy of science and even studies of humanities through complexity theory and sociophysics. With a collaborator from Nancy, he developed a theory for critical mass of research groups and measured these for a multitude of academic disciplines. The studies performed under his guidance on measuring the research quality made a significant impact in the media and with policymakers all over the world. He also pioneered the application of network theory to investigate societies depicted in mythological narratives, opening the way to quantitative research in comparative mythology. Of special interest was Ralph Kenna's interest in Irish Mythology which led to analyses of the Epic Poems of Ossian, the Viking Age in Ireland, the eponymous narrative 'The raid of Fráoch's cattle', and quite recently the Ukrainian mythology. His last contribution tells the 'extraordinary story of Sinann' which gave her name to the river of his native town Athlone and summarizes in some way the driving ideas of 'Math Meets Myth' — a series of conferences and a research concept initialized by Ralph.

The Editorial Board of "Condensed Matter Physics" expresses sincere condolences to Ralph Kenna's family, his friends, and colleagues. Outstanding physicist, a devoted teacher, a kind and bright personality, a tireless champion of his historical and cultural traditions, and a big friend of Ukraine, may he rest in peace. We will always carry his memory in our hearts.