TEXT OF THE INTRODUCTORY ADDRESS DELIVERED BY: **DR MICHAEL B MURPHY,** Pro-Vice-Chancellor of the University, President, University College Cork on 2 December 2010 in the National University of Ireland, on the occasion of the conferring of the Degree of Doctor of Science, *honoris causa,* on **RICHARD MILNER**

A Sheansailéir, a mhuintir na hOllscoile agus a dhaoine uaisle,

Professor Richard Milner is Professor of Physics at Massachusetts Institute of Technology and Director of MIT's Laboratory for Nuclear Science (LNS). From an auspicious start in 1989 when he was presented with the Presidential Young Investigator Award from the National Science Foundation by President George Bush Senior in the White House, Richard Milner has exhibited a stellar career to the point where today he holds arguably the most prestigious position in nuclear physics in the world.

His lifetime research efforts have concentrated on understanding the spin structure of strongly interacting systems, particularly the spin structure of the nucleon.

Richard was born in Cork City, the eldest of five children on December 2 1956. He attended Mayfield primary school and underwent secondary education at St Finbarr's College, Farranferris, Cork. There he fell under the spell of Dan Joe Riordan, his science teacher, to whom he owes his lifelong love of physics. He graduated with a BSc in 1978 in Experimental Physics and a Masters degree in Theoretical Physics in 1979 from University College Cork. In recent media interviews he has attributed much of his experimental success to the influence of Professor Frank Fahy and his colleagues at UCC in the 1970s. Fahy's department, renowned for its rigor, its demand for excellence, spawned an extraordinary cadre of graduates who have exerted global influence. Exemplars include Seamus Davis, Professor of Physics at Cornell and recent winner of the Fritz London Prize for Physics, Margaret Murnane, Professor of Physics at Colorado recently elected to the US National Academy of Sciences. Professor Fahy's own son Stephen returned to Ireland from Berkeley in 1993, as a Professor of Physics at UCC.

After graduation, engaged to another UCC graduate, Eileen Troy, Richard began his research career as a doctoral student in California Institute of Technology (Caltech) in the experimental nuclear physics group. Tutored by world leading scientists including Willie Fowler (Nobel Laureate 1983) and Richard Feynman (Nobel Laureate 1965) he was awarded his Caltech PhD in 1985. Feynman was an examiner of his thesis and grilled Richard for over 2 hours so that he now proudly proclaims that he got a real Caltech PhD!

It was Feynman who demonstrated to the congressional committee investigating the explosion of the space shuttle Challenger the defects in the infamous O-Rings.

Following a further four years as a Postdoctoral student in the Caltech lab, Richard moved to Boston to the Department of Physics at MIT. In the ensuing 10 years he was promoted to full Professorship, Director of the world renowned Bates Linear Accelerator Center from 1998 – 2006 and, in 2006, Director of the MIT Laboratory for Nuclear Science. This is one of the largest laboratories at MIT with over 300 staff including 90 graduate students. In its 63 year history, it has spawned four Nobel Laureates and today it deploys theorists and nuclear physicists who conduct experiments across the globe, to the Large Hadron Collider Facility in Geneva, the Jefferson Laboratory, the Brookhaven National Laboratory as well as MIT itself.

Richard Milner's research focuses on the nature of fundamental particles. He envisions experiments, builds ground breaking innovative experimental apparatus and conducts experiments to increase our understanding of the nature of matter. To quote his own website

at MIT his major achievement over the last decade has been the HERMES project to study the spin structure of the nucleon providing "important new data on the flavor, decomposition of the quark spin and the contribution of its glue", experiments yielding a whole range of unexpected results.

At the MIT BATES Linear Accelerator Center, he has led the construction of a new large detector, the 'Bates Large Acceptance Spectrometer Toroid' (BLAST). BLAST is used to measure spin-dependent electron scattering from polarized hydrogen, deuterium and helium providing important information on the spin structure of light nuclei as well as on the neutron form-factors. Experiments designed by Richard are conducted in Hamburg, at CERN in Switzerland and on the International Space Station which is why one has to be prepared to travel to Cape Canaveral, to Germany, to Switzerland or to Japan, much more commonly than Boston, to meet with him!

Richard has held many important positions in international science. He is regularly Chair or member of science review panels for the National Science Foundation of the United States, the National Science and Engineering Research Council of Canada, Deutsche Forschungsgemeinschaft, the United States Nuclear Science Advisory Committee, Department of Energy. Elected Fellow of the American Physical Society in 2005, he was elected Chair of the Division of Nuclear Physics of the Society in 2007. He has held positions on the Editorial Board of Physical Review and been Editor of the European Physical Journal. Notwithstanding his busy international career he retains a strong commitment to Ireland. Last year, he made a personal submission on innovation in the physical sciences to the Farmleigh Global Irish Economic summit.

Each year he sends his children to Cork for the summer to play with the Glanmire Soccer Club managed by their uncle, to spend time with his mother, Maura now in her 87th year. He plays guitar and celebrates the richness of Irish music.

I am delighted to welcome Richard's wife Eileen and their children Will, Samuel and David and the extended Milner family to today's conferring and to celebrate, what will have been noticed, by the observant among you listening to my introductory remarks, Richard Milner's 54th birthday!

Chancellor I have the honor to present to you for Honorary Doctorate in Science from the National University, Richard Milner, Bachelor and Masters Graduate of the University, now a world renowned scientist in the field of nuclear physics.

PRAEHONORABILIS CANCELLARIE, TOTAQUE UNIVERSITAS:

Presento vobis hunc meum filium, quem scio tam moribus quam doctrina habilem et idoneum esse qui admittatur, honoris causa, ad gradum Doctoratus in Scientiae, idque tibi fide mea testor ac spondeo, totique Academiae.