



Hamilton Institute

Schrödinger's Legacy: Systems and Life

An E.T.S. Walton Lecture in the Hamilton Bicentenary Year 2005 Public Lecture Series

Science Foundation Ireland Research Professor, Peter E. Wellstead

7.00pm Thursday, 21st April 2005

The Royal Irish Academy, Dublin

In his 1943 Dublin lectures, Schrödinger sought a rapprochement between his understanding of physical systems and the molecular mechanisms of life. The lectures became what Schrödinger referred to as 'this little book' - **What is Life?** The little book went on to play a seminal role in biological research in the latter half of the 20th Century, contributing to the development of **Molecular Biology** and the discovery of the structure of DNA. In addition to these well-known consequences, **What is Life?** also provided an impetus for research into how methods developed for analysing physical systems could be used to understand the mechanisms that underlie cellular life. The many research lines associated with this work have only recently fused under a single name: **Systems Biology**.

In this E.T.S. Walton Lecture I will outline the background of Systems Biology, and show how developments in instrumentation, mathematics and dynamical systems analysis can assist biological research. In addition to scientific benefits, Systems Biology has positive economic and social implications. Through computer-based models of organs and cellular function, Systems Biology offers the potential for a clearer quantitative understanding of the mechanisms of disease and consequently for better treatments. If only part of this potential is realised then Schrodinger's contribution to the emergence of Systems Biology, as with Molecular Biology before, can deservedly be claimed as an important element of his scientific legacy.



NUI MAYNOOTH

Ollscoil na hÉireann Má Nuad