

Professor Ruggero Maria Santilli.

When one considers nominations for a prize as prestigious as the Nobel Prize, one immediately thinks of the many truly formidable past recipients and one realises that one necessary qualification is to have made an enormous step forward in the pursuit of knowledge - very often a step going completely against the accepted conventional wisdom of the time. In my view, one person, presently active in Physics, who falls into this category is Professor Ruggero Maria Santilli. Recognising various failings in conventional theories, Professor Santilli first embarked on achieving a series of generalisations of accepted mathematics as a prelude to attempting to find solutions to a number of unsolved problems in science - in Chemistry and Biology as well as Physics. He was successful in his quest and called his generalisations of mathematics **isomathematics, genomathematics, hypermathematics and their duals**. All of this material was contained in an article published in the Italian journal *Rendiconti Circolo Matematico Palermo, Suppl. 42, pp.1-87, 1996*.

These developments in mathematics are worthy of mention in their own right, but it is the original ideas in the description of the physical world which followed which are of real concern here. The first major application came with Hadronic Mechanics. Such mechanics has assumed greater and greater relevance as time has passed. It has led in particle physics to the first quark model with real confinement ; in nuclear physics to the first prediction of the decay of the neutron, and to suggesting a new, much safer, means for recycling nuclear waste; as well as similarly novel and correct results in astrophysics and superconductivity, in chemistry and biology. Secondly came the discovery of the Lie-isotopic and Lie-admissible generalisations of Galilei's relativity for classical dynamical systems within physical media. This was followed by the isospecial and genospecial relativities which are so important because they extend the applicability of the conventional Einstein axioms to arbitrary local light speeds. This allows , for the first time, the breaking of the speed of light barrier in an axiomatically correct way. This in turn introduces a valid description of the superluminal speeds measured on earth as well as in astrophysical events. It might be noted also that another potentially important consequence of the new isospecial relativity is the proposed new means for recycling nuclear waste. Professor Santilli has also produced a new classical and operator isodual theory of antimatter. This new theory has been found compatible with all existing experimental data on antimatter but awaits experimental verification of its predictions concerning the behaviour of antimatter under gravity.

However, important as all these pieces of work undoubtedly are, it is his work in gravitation and cosmology to which I wish to draw specific attention and, within that body of work, to his achieving ***the only known axiomatically consistent unification of gravitation and the electroweak interactions in classical and operator mechanics as well as for matter and antimatter***. This work is reported in the article in *Foundations of Physics Letters, vol. 10, pp. 307-327, 1997*. In this work, Professor Santilli first identified the major problem with earlier attempts to achieve such a unified theory as being rooted in inadequacies in the underlying mathematics. He then set about systematically creating a new mathematics before tackling the main unification problem. This seems to bring to mind the approach adopted the great Sir Isaac

Newton. However, while not going so far as to compare Santilli with Newton, the allusion does not seem totally inappropriate and, suffice it to say that, with this approach, Santilli did achieve his goal.

Bearing in mind all of the above, I would beg to be allowed the privilege of supporting the nomination of Professor Ruggero Maria Santilli for the 1998 Nobel Prize in Physics.

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P.S. I enclose a copy of the important article from *Foundations in Physics Letters* but understand other supporting documentary evidence to support this nomination has been lodged with you already. It seems pointless to burden you with further copies of papers and books. However, if anything further is required, I will do my utmost to satisfy any requests from the committee for information.