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# Theoretical, Materials and Condensed Matter Physics

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### Implications of the link between the periodic table and the standard model

The mathematics of quantum physics from the standard model using groups  $U(1) \times SU(2) \times SU(3)$  and the Pauli Principle produces two sets of time independent quantum states  $n(n+1)$  and  $n(n-1)$  where  $n$  is the principal quantum number. Oscillations between these states result in a one to one mapping with the Roberts-Janet Nuclear Periodic Table by interpretation of  $n > 0$  for condensed matter and  $n < 0$  for plasma prior to fusion. The mechanism provides a framework for Periodic Tables for every supernova by excluding mass number. In the lower half of the table occupation by bosons leads to increased energy densities in which an ensemble of outcomes is discussed. A hypothesis of string theory is proposed at the nuclear end of the table merging into quantum loop gravity at the condensed matter top end of the table.

### Biography

John Owen Roberts graduated in 1969 with a BSc (Hons) in Physics from The University of Liverpool. He has been an Open University Tutor for 30 years and a private tutor of Maths and Science. He is the author of "Those Infinities and the Periodic Table" (ISBN 978-0-9934667-3-1). He has had published an article "Proposed Link between the Periodic Table and the Standard Model", July 2017 in the Journal Materials Science and Engineering.

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