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# LBNL Nuclear Physics Forum

Thursday, April 20, 2015 @ 11:00 am

Building 88 Lounge (2nd floor)

*Cookies and coffee available from 10:15am*

Prof. John L. Wood

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***“Tales of the unexpected - the saga of nuclear shape coexistence”***

Nuclear shape coexistence was first identified in  $^{16}\text{O}$  by Morinaga [1] in 1956. The recognition of this feature of nuclear structure as a universal structural characteristic advanced only very slowly across the mass surface. Today it can be conjectured to occur in (nearly) all nuclei.

Key steps in this saga will be visited. This will be illustrated with the variety of spectroscopic signatures used, such as the role of “intruder” states in establishing shape coexistence. The saga will be completed with a current view of the status of the topic, including evidence for multiple coexisting shapes and the remarkable (multiple) parabolic behavior in excitation energies as a function of changing nucleon number.

[1] H. Morinaga, Phys. Rev. **101** 254(1956). K. Heyde et al., Phys. Repts. **102** 291(1983).

J.L. Wood et al., Phys. Repts. **215** 101(1992). Kris Heyde and John L. Wood, Rev. Mod. Phys. **83** 1467(2011).

Focus on shape coexistence in nuclei, eds. J.L. Wood and K. Heyde,

J. Phys. G: Nucl. Part. Phys. **43** Feb 2016 (multiple contributions).



Nuclear Science Division