

Abstract Submitted  
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**Nuclear Checker Board Model** THEODORE LACH, Retired — The NCB Model <sup>1,2,3</sup> suggests that the nucleus is a relativistic 2D structure. In 1996 at Argonne National Lab the Checker Board Model was first presented. In that poster presentation it was explained that the relativistic constituent quarks orbit inside the proton at about 85%  $c$  and about 99%  $c$  inside the neutron. As a way to test the model it was found that the de Broglie wavelength of the up quark matched the calculated circumference of the proton (radius = 0.5194 fm) analogous to the Bohr model of the electron in the H atom. 20 years later it is now accepted that the quarks are moving at relativistic speeds and the orbital motion of the quarks contribute the major part of the spin of the proton. If one considers the motion of the relativistic quarks inside the nucleus (take for example Ca 40) about its center of mass, one realizes that these relativistic quarks are confined to *shells* inside the nucleus (the He shell {the inner 4 nucleons}, the Oxygen shell ...). So the CBM eliminates the need for an illusionary strong nuclear force in favor of a force based upon an E/M force in perfect spin synchronization in a 2D plane. So the CBM is not at odds with the shell model but instead explains why the nucleus has a shell structure and correctly predicts the shell closures.

1. "Nuclear Structure at the limits" July 23<sup>rd</sup>, 1996.
2. Checkerboard Structure of the Nucleus, Infinite Energy, **5**, issue 30, March 2000.
3. Website:<http://checkerboard.dnsalias.net>

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