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A theory of the N-clock MICHAEL CRESCIMANNO, Youngstown State University, Dept. of Physics and Astronomy, IRINA NOVIKOVA, DAVID PHILLIPS, Harvard-Smithsonian Center for Astrophysics, ALEXANDER ZIBROV, Harvard University, Dept. of Physics, RON WALSWORTH, Harvard-Smithsonian Center for Astrophysics — There is great current interest in developing compact, robust atomic clocks with low power consumption and fractional frequency stability better than a part per trillion. In recent years, significant progress toward this goal has been achieved using coherent population trapping (CPT) resonances in atomic vapor. An alternative to the CPT clock scheme is the N-resonance clock, an all-optical three-photon-absorption resonance (in Rb vapor) discovered in 2002. I review the current state of the experimental characterization of the N-resonance, and describe a preliminary comparison between these data and a theoretical (quantum-optics based) model.

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