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Novel absorption resonance for all-optical atomic clocks IRINA NOVIKOVA, SERGEI ZIBROV, CHRIS SMALLWOOD, YANHONG XIAO, DAVID PHILLIPS, RONALD WALSWORTH, ALEXANDER ZIBROV, Harvard-Smithsonian, ALEKSEI TAICHENACHEV, VALERIY YUDIN, Novosibirsk State University — We report an experimental study of an all-optical three-photon- absorption resonance (N-resonance) and discuss its potential application as an alternative to atomic clocks based on coherent population trapping (CPT). We present measurements of the N- resonance contrast, width and light-shift for ^{87}Rb under various experimental conditions, and find good agreement with an analytical model of this novel resonance.

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