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The Ultrashort laser pulses in water that violates the Lambert-Beer Law JOONG BYEON, GEORGE KATTAWAR, LUCAS NAVEIRA, ALEXEI SOKOLOV, Texas A&M University Physics — Recent experiments have opened the possibility that by using ultrashort Laser Pulse in H2O, it may be possible to propagate light (signal) over much further distance than predicted by the familiar Beer-Lambert Law. To explain it, the complete femtosecond-width pulse propagation process will be modeled and simulated by FDTD method in visible frequency range. We will show how the FDTD method can be used to accuately model the propagation of Ultrashort pulses in water. We will also show the development of the both the Sommerfeld and Brillouin optical precursors. We will, for the first time, use the actual absorption spectrum of water in these calculations and compare the results with experimental data.

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