

2014_04_20

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Pulses and waves

When I think of a wave, I can't help but think of a water wave, with period, frequency, amplitude, and phase. As far as I can tell, physicists have used that naïve idea of a physical wave as the model for periodic phenomena (stuff) even when it might not be the best model, for example, light. A pulse might be a better model. But I don't know of mathematical treatments of pulses as thorough as of waves, including the relation between a pulse and a wave, and the application of the idea of a pulse to wave-like stuff such as light. I need suggestions of simple, clear, logical, accessible treatments with examples.