

PSI Colloquium

Friday, October 18, 2019, 11:15 h, WHGA/001

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Superoscillations (faster than Fourier) (p)revisited: vorticulture, fractals, escape...

Band-limited functions can oscillate arbitrarily faster than their fastest Fourier component over arbitrarily long intervals: they can ‘superoscillate’. In physics, this mathematical phenomenon is associated with almost-destructive interference, and occurs near phase singularities in optics and on the world’s ocean tides; it is associated with quantum weak measurements, and has been applied to sub-wavelength microscopy. Where superoscillations occur, functions are exponentially weak and vulnerable to noise. They are an unexpectedly compact way of representing fractals. Superoscillations in red light can escape as gamma radiation

