

Abstract Submitted  
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**Connection between ‘unparticle’ and ‘unmatter’** ERVIN GOLD-  
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— The connection between ‘unparticle’ and ‘unmatter’ is as follows. Unparticles have  
very odd properties which result from the fact that they represent fractional field  
quanta. Unparticles are manifested as mixed states that contain arbitrary mixtures  
of particles and antiparticles (therefore they simultaneously evolve “forward” and  
“backward” in time). From this, the connection with unmatter (since unmatter is  
formed by particles and antiparticles). Using the fractal operators of differentiation  
and integration we get the connection between unparticle and unmatter. ‘Unmat-  
ter’ was coined by F. Smarandache in 2004 in CERN’s website; he published three  
papers on the subject.

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