

Neutrosophic Physics – as a new research field

See http://www.ams.org/meetings/calendar/2011_dec2-4_gallup.html

and about neutrosophics see: <http://fs.gallup.unm.edu/neutrosophy.htm>

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Name: Introduction to Neutrosophic Physics: Unmatter & Unparticle

Location: The University of New Mexico, Mathematics & Sciences Department, 200 College Rd., Gallup, New Mexico.

Neutrosophic Physics describes collections of objects or states that are individually characterized by opposite properties, or are characterized neither by a property nor by the opposite of that property. Such objects or states are called *neutrosophic entities*.

Neutrosophic Physics means a mixture of physical concepts/ideas/spaces/laws/theories $\langle A \rangle$ with their opposite $\langle \text{anti}A \rangle$ or with their neutral $\langle \text{neut}A \rangle$ (where $\langle \text{neut}A \rangle$ is the neutrality with respect to $\langle A \rangle$, and means neither $\langle A \rangle$ nor $\langle \text{anti}A \rangle$ but in between), i.e. combinations of heterogeneous contradictory things which hold together. There are many cases in scientific fields (and in humanistic fields) that an item $\langle A \rangle$ and its opposite $\langle \text{anti}A \rangle$ or their neutral $\langle \text{neut}A \rangle$ are simultaneously valid.

Several examples of neutrosophic entities:

- in two spatial dimensions, anyons are arbitrary spin particles that are neither bosons (integer spin) nor fermions (half integer spin);
- among possible Dark Matter candidates there may be exotic particles that are neither Dirac nor Majorana fermions;
- mercury (Hg) is a state that is neither liquid nor solid under normal conditions at room temperature;
- non-magnetic materials are neither ferromagnetic nor anti-ferromagnetic;
- quark gluon plasma (QGP) is a phase formed by quasi-free quarks and gluons that behaves neither like a conventional plasma nor as an ordinary liquid;
- unmatter, which is formed by matter and antimatter that bind together (Smarandache, 2004);
- neutral Kaon, which is a pion & anti-pion composite (Santilli, 1978) and therefore a form of unmatter;
- neutrosophic methods in General Relativity (Rabounski-Smarandache-Borissova, 2005);
- neutrosophic cosmological model (Rabounski-Borissova, 2011);
- neutrosophic gravitation (Rabounski).

This idea of unparticle was first considered by F. Smarandache in 2004, 2005 and 2006, when he uploaded a paper on CERN web site and published three papers about what he called 'unmatter', which is a new form of matter formed by matter and antimatter that bind together. In 2006 E. Goldfain introduced the concept of "fractional number of field quanta" and he conjectured that these exotic phases of matter may emerge in the near or deep ultraviolet sector of quantum field theory. H. Georgi proposed the theory of unparticle physics in 2007 that conjectures matter that cannot be explained in terms of particles using the Standard Model of particle physics, because its components are scale invariant.

Etymologically, **neutro-sophy** [French *neutre* < Latin *neuter*, neutral, and Greek *sophia*, skill/wisdom] means knowledge of neutral thought and started in 1995.

Neutrosophic Physics is derived from Neutrosophic Logic, Neutrosophic Set, Neutrosophic Probability and Statistics.

Papers on current trends in High Energy Physics about exotic matter, about connections between unmatter and unparticle, about Neutrosophic Physics (about physical entities that have contradictory properties, or have neither a property nor the opposite of that property) as new research in Theoretical Physics, should be sent to the organizer preferably by email.

Prof. Florentin Smarandache, Ph D
University of New Mexico
200 College Road
Gallup, NM 87301, USA
Tel: 505-863-7647
Fax: 505-863-7532 (Attn. Dr. F. Smarandache)
E-mails: fsmarandache@yahoo.com, smarand@unm.edu
URL: <http://fs.gallup.unm.edu/physics.htm>