Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

Neutrosophic Triplet as extension of Matter Plasma, Unmatter Plasma, and Antimatter Plasma FLORENTIN SMARANDACHE, University of New Mexico, MUMTAZ ALI, Quaid-i-azam University Islamabad, Pakistan — A Neutrosophic Triplet, is a triplet of the form: <a, neut(a), and anti(a) >, where neut(a) is the neutral of a, i.e. an element (different from the identity element of the operation *) such that a*neut(a) = neut(a)*a = a, while anti(a) is the opposite of a, i.e. an element such that a*anti(a) = anti(a)*a = neut(a). Neutrosophy means not only indeterminacy, but also neutral (i.e. neither true nor false). For example we can have neutrosophic triplet semigroups, neutrosophic triplet loops, etc. As a particular case of the Neutrosophic Triple, in physics one has <Matter, Unmatter, Antimatter>and its corresponding triplet <Matter Plasma, Unmatter Plasma, Antimatter Plasma>. We further extended it to an m-valued refined neutrosophic triplet, in a similar way as it was done for T_1, T_2, ...; I_1, I_2, ...; F_1, F_2, ... (i.e. the refinement of neutrosophic components). We may have a neutrosophic m-tuple with respect to the element "a" in the following way: (a; $neut_1(a)$, $neut_2(a)$, ..., $neut_p(a)$; $anti_1(a)$, $anti_2(a)$, ..., $anti_p(a)$), where m = 1+2p, such that: - all $neut_1(a)$, $neut_2(a)$, ..., $neut_p(a)$ are distinct two by two, and each one is different from the unitary element with respect to the composition law *; - also $a*neut_1(a) = neut_1(a)*a = a$, $a*neut_2(a) = neut_2(a)*a = a$, ..., $a*neut_p(a) = neut_p(a)*a = a$; - and $a*anti_1(a) = anti_1(a)*a = neut_1(a)$, $a*anti_2(a) = anti_2(a)*a = neut2(a)$, ..., $a*anti_p(a) = anti_p(a)*a = neut_p(a)$; - where all $anti_1(a)$, $anti_2(a)$, ..., $anti_p(a)$ are distinct two by two, and in case when there are duplicates, the duplicates are discarded.

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Date submitted: 23 May 2016 Electronic form version 1.4