A **Smarandache Strong Structure** on a set $S$ means a structure on $S$ that has a proper subset $P$ with a stronger structure.

By *proper subset* of a set $S$, we mean a subset $P$ of $S$, different from the empty set, from the original set $S$, and from the idempotent elements if any.

In any field, a **Smarandache strong $n$-structure** on a set $S$ means a structure $\{w_0\}$ on $S$ such that there exists a chain of proper subsets $P_{n-1} < P_{n-2} < \ldots < P_2 < P_1 < S$, where '<' means 'included in', whose corresponding structures verify the inverse chain $\{w_{n-1}\} > \{w_{n-2}\} > \ldots > \{w_2\} > \{w_1\} > \{w_0\}$, where '>' signifies 'strictly stronger' (i.e., structure satisfying more axioms).

And by *structure* on $S$ we mean the strongest possible structure $\{w\}$ on $S$ under the given operation(s).

As a particular case, a **Smarandache strong 2-algebraic structure** (two levels only of structures in algebra) on a set $S$, is a structure $\{w_0\}$ on $S$ such that there exists a proper subset $P$ of $S$, which is embedded with a stronger structure $\{w_1\}$.

For example, a **Smarandache strong semigroup** is a semigroup that has a proper subset which is a group.

Also, a **Smarandache strong ring** is a ring that has a proper subset which is a field.

Properties of Smarandache strong semigroups, groupoids, loops, bigroupoids, biloops, rings, birings, vector spaces, semirings, semivector spaces, non-associative semirings, bisemirings, near-rings, non-associative near-ring, binary-rings, fuzzy algebra and linear algebra are presented in the below books together with examples, solved and unsolved problems, and theorems.

Also, applications of Smarandache strong groupoids, near-rings, and semirings in automaton theory, in error correcting codes, in the construction of $S$-sub-biautomaton, in social and economic research can be found in the below e-books.


Program:

1) Smarandache type strong groupoids, semigroups, rings, fields;

2) Smarandache type strong $k$-modules, vector spaces, linear algebra, fuzzy algebra.
Organizer: Dr. M. Mary John, Head of Department of Mathematics

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**Book series:**

- [Neutrosophic Rings](#), by W. B. Vasantha Kandasamy, F. Smarandache
- [N-Algebraic Structures](#), by W. B. Vasantha Kandasamy, F. Smarandache
- [Introduction to N-Adaptive Fuzzy Models to Analyze Public Opinion on AIDS](#), by W. B. Vasantha Kandasamy, F. Smarandache
- [A Study of New Concepts in Smarandache Quasigroups and Loops](#), by Jaiveola Temitope Gbolahan

**Article:**

- R. Padilla's editing

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**See also:**

- [Smarandache Weak Structures](#)
- [Smarandache Strong-Weak Structures](#)