of a **superfield** suggests that it should be invariant under a *worldline supersymmetry.* This indeed is the case. The reparametrization invariance and the **supersymmetry** of the *fermionic Wilson loop* have been studied in [3].

The **super Wilson loop** has been used with great profit in investigating chiral anomalies in quantum *field theories* [4]. It has also been suggested that the **super Wilson loop** may be an important tool in studying the *string-QCD duality* [5].

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Vikram Vyas

SUPERANALYTICITY — A superanalytic function $f : \mathbf{C}_\Lambda^{n,m} \to \Lambda$ on the **superspace** $\mathbf{C}_\Lambda^{n,m} = \Lambda_0^n \times \Lambda_1^m$ over a supercommutative *Banach superalgebra* [1] $\Lambda = \Lambda_0 \oplus \Lambda_1$ (over the field of complex numbers $\mathbf{C}$) can be expanded in a power series

$$f(x,\theta) = \sum_{\alpha\beta} x^\alpha \theta^\beta f_{\alpha\beta}, \quad f_{\alpha\beta} \in \Lambda,$$

where $z = (x,\theta) \in \mathbf{C}_\Lambda^{n,m}$, $x^\alpha = x_1^{\alpha_1}...x_n^{\alpha_n}$, $\alpha_j = 0,1,2,\ldots$, $\theta^\beta = \theta_1^{\beta_1}\ldots\theta_m^{\beta_m}$, $\beta_j = 0,1$, and $\|f\|_R = \sum_{\alpha\beta} R^\alpha \|f_{\alpha,\beta}\| < \infty$ for some $R \in \mathbf{R}_+$. If the power series converges for all $R \in \mathbf{R}_+$, then f is an *entire superanalytic function.* The space of *entire superanalytic functions* is the base of the theory of supernalytic distributions [2].

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Andrei Khrennikov

SUPERCOMPLEXIFICATION — Tensoring over $\mathbb{R}$ by $\mathbb{C}$ of a *real superspace* V. However, $\mathbb{C}$ can be considered as purely even or — the totally new super feature — we can assume that purely imaginary elements are odd. This leads to noncommutative super geometry, [1], the "queer" analog of the general Linear group [2] preserves this structure. The *structure functions* of the G-structure (analogs of the **Nijenhuis tensor**) are calculated in [3].

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Dimitry Leites

SUPERCOMPLEXIFICATION, equations — The special method of the supersymmetrization to the *extended supersymmetry* of the classical as well as the supersymmetrical equation with the lower supersymmetry. If in the some supersymmetric equation of motion with the N **supersymmetry**

$$\frac{du}{dt} = K(u) = P\, grad(h),$$

where $K(u)$ denotes a vector field on a certain (super)-manifold M, P is the *Poisson operator*, H is the Hamiltonian, we replace the N **supermultiplet** u by $M = N + 2$ **supermultiplet**

$$u \longrightarrow (D_{N+1}D_{N+2}\Phi) + i\Phi_x$$

where D_{N+1} and D_{N+2} are the additional new supercovariant derivatives, then the supersymmetric equation of motion on the Φ are

$$\frac{d\Phi}{dt} = \int^x Im(K(u))\,dx$$

This **supercomplexification** changes the **character** of the parity of the *Poisson operator.* More exactly if the *Poisson operator P* generates some even (super) algebra then after the **supercomplexification** this algebra becomes the *odd algebra.* In the case of supercomplexified Korteweg de Vries equation we obtain that P generate the supersymmetric *odd-Virasoro like algebra.*

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Ziemowit Popowicz

SUPERCONFORMAL (2,0)-THEORY — A conjectured [1] class of *superconformal theories* with (2,0) supersymmetry (generated by 4 symplectic Majorana–Weyl fermionic operators) in 5+1D. Most of the properties of the theories are derived from its **M-theory** [2] or *string theory* realizations [1].

There exists a (2,0) theory for every finite **Lie algebra** that has a simply laced **Dynkin diagram** (i.e. $su(n)$, $so(2n)$ and $E_{6,7,8}$). We will denote the corresponding group by G (we will take G to have a trivial center).

It is conjectured that on flat $\mathbf{R}^{5,1}$ the theory is described by a *M(atrix) model* [3–4] that is constructed from quantum mechanics on the *moduli space* of G-*instantons* on $\mathbf{R}^4$. It is also believed that the large n limit of the $SU(n)$ theories is described by **M-theory** on $AdS_7 \times S^4$ [5] and the large n limit of $SO(2n)$ theories is described by **M-theory** on $AdS_7 \times RP^4$ [6].