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**Locally conformally symplectic
structures on Lie algebras and
Solvmanifolds**

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Abstract: A locally conformal symplectic structure (LCS for short) on the manifold M is a non degenerate 2-form ω such that there exists an open cover $\{U_i\}$ and smooth functions f_i on U_i such that $\omega_i = \exp(-f_i)\omega$ is a symplectic form on U_i . This condition is equivalent to requiring that $d\omega = \theta \wedge \omega$ for some closed 1-form θ called the Lee form.

The pair (ω, θ) is called an LCS structure on M .

According to Vaisman a LCS structure can be of the first or of the second kind.

In this talk we will focus on left invariant LCS structures on Lie group or equivalently these structures on their Lie algebras. We will study LCS structures on Lie algebras of type I, and we will show a method to build examples of LCS Lie algebras admitting of the second kind. We will also discuss about the existence of lattices in the associated simply connected Lie groups.

