

# The symplectic Seiberg-Witten equations

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## Abstract

We define the C-metaplectic group and the symplectic Seiberg-Witten equations.

## 1 The C-metaplectic group

The C-metaplectic group is defined as:

$$C - Mp(2n) = Mp(2n) \times S^1 / \{1, -1\}$$

with  $Mp(2n)$  the metaplectic group, a two fold covering space of the symplectic group  $Sp(2n)$ .

## 2 The symplectic Seiberg-Witten equations

In the case of a C-metaplectic structure over a symplectic manifold  $(M, \omega)$ , we can define the symplectic Seiberg-Witten equations as:

$$D_\omega^A(\psi) = 0$$

$$F(A)(X, Y) = i\omega(X, Y) \langle \psi, \psi \rangle$$

with  $D_\omega^A$ , the symplectic Dirac operator [H] and  $A$ , the connection of the line bundle associated to the C-metaplectic structure.  $F(A)$  is the curvature of the connection  $A$ .

## References

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- [GHL] S.Gallot, D.Hulin, J.Lafontaine, "Riemannian geometry", 3ed., Springer, Berlin, 2004.
- [H] K. & L.Habermann, "Introduction to Symplectic Dirac Operators", Lecture Notes in Mathematics 1887, Springer, 2006.