

Calibrated Geometries and Moment Maps

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Resumo

We begin by introducing special Lagrangian geometry in \mathbb{C}^m , that is, we define *calibrations*, *calibrated submanifolds*, and *special Lagrangian submanifolds* of \mathbb{C}^m . Then we discuss *moment maps*, and shows that if N is a Lagrangian submanifold with symmetry group G then the moment map on G is constant on N .

Let L be a special Lagrangian submanifold of \mathbb{C}^m . The symmetry group $Sym(L)$ is defined to be the Lie subgroup of $SU(m) \times \mathbb{C}^m$ preserving L . Now it is a general principle that the easiest geometric objects to construct are those with large symmetry groups. The most symmetric kinds of special Lagrangian submanifolds L are those *homogeneous*, and with *cohomogeneity one*, that is, where the orbits of the symmetry group are of codimension zero or one in L , respectively.

We study cohomogeneity one SL m -folds L in \mathbb{C}^m , where the orbits of the symmetry group $G \subseteq SU(m) \times \mathbb{C}^m$ are of codimension one in L . Then L is foliated by a one-parameter family of G -orbits parametrized by $t \in \mathbb{R}$. We write the condition that L be a special Lagrangian as an o.d.e upon G -orbits depending on t , and by solving this equation we find examples of SL m -folds in \mathbb{C}^m .

Referências

- [1] AUDIN, M., CANNAS, A. AND LERMAN, E., *Symplectic geometry of integrable Hamiltonian systems*. Springer-Verlag, Berlin-Heidelberg, 2003.
- [2] CANNAS, A., *Lectures on symplectic geometry*. Springer-Verlag, Berlin-Heidelberg, 2008.
- [3] HARVEY, R. AND LAWSON, H., *Calibrated geometries*. Acta Math. **148**(1982), 47–157.
- [4] JOYCE, D., *Special Lagrangian m -folds in \mathbb{C}^m with symmetries*. Duke Math. J. **115**(2002), no. 1, 1–51.

*Todas as terças e quintas. Hora: 13:10 - Sala: B106b.