

MR2228238 (2007e:32034) 32S30 (14B05 14B12)

van Straten, Duco (D-MNZ)

Some problems on Lagrangian singularities. (English summary)

Singularities and computer algebra, 333–349, *London Math. Soc. Lecture Note Ser.*, 324, Cambridge Univ. Press, Cambridge, 2006.

An n -dimensional singularity in a $2n$ -dimensional complex symplectic manifold is Lagrangian if the symplectic form vanishes on the regular locus. This paper gives an introduction to the theory with many examples. The Lagrangian condition is a very strong constraint. One of the problems mentioned is whether all rational triple points admit a realisation as Lagrangian singularity (the cone over the rational normal curve does). Deformations of Lagrangian singularities are also discussed. Every plane curve singularity is automatically Lagrangian, and its Lagrangian deformation space has dimension μ , the Milnor number of the singularity (rather than τ as in the ordinary case). An explanation for irreducible curve singularities is given using the theory of the period mapping. The intersection form on the Milnor fibre then gives a symplectic form on the deformation space, and the $\delta=\text{const}$ stratum is a Lagrangian subvariety. The paper ends with some problems and conjectures concerning this $\delta=\text{const}$ stratum and its relation to torsion-free modules on the curve.

{For the entire collection see [MR2213463 \(2006k:14002\)](#)}

Reviewed by *Jan Stevens*

© Copyright American Mathematical Society 2007, 2011