

Affine special Lagrangian submanifolds of \mathbf{C}^n

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The theory of special Lagrangian submanifolds or, in other words, minimal totally real submanifolds of complex space forms is very rich and has large literature. An affine version of the theory is proposed. It essentially extends the Riemannian case as there are many examples of affine Lagrangian submanifolds which cannot be Lagrangian in the Riemannian sense even locally. Minimality is studied from various viewpoints and a few interpretations of the notion is given. In particular induced volume forms (complex and real) and integral formulas, the second variational formula, an interpretation by affine calibrations and phases are discussed. Examples are provided.