

Title: Lagrangian submanifolds in complex space forms satisfying an improved equality involving $\delta(2, 2)$

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It was proved in [?], [?] that every Lagrangian submanifold M of a complex space form $\tilde{M}^5(4c)$ of constant holomorphic sectional curvature $4c$ satisfies the following optimal inequality:

$$\delta(2, 2) \leq \frac{25}{4}H^2 + 8c, \quad (\text{A})$$

where H^2 is the squared mean curvature and $\delta(2, 2)$ is a δ -invariant on M introduced by the first author. This optimal inequality improves a special case of an earlier inequality obtained in [B.-Y. CHEN, Japan. J. Math. **26** (2000), 105–127].

The main purpose of this paper is to classify Lagrangian submanifolds of $\tilde{M}^5(4c)$ satisfying the equality case of the improved inequality (A).

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