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Codimension reduction problem for real submanifold of complex projective space. (English)

Zbl 0789.53035

Szenthe, J. (ed.) et al., Differential geometry and its applications. Proceedings of a colloquium, held in Eger, Hungary, August 20-25, 1989, organized by the János Bolyai Mathematical Society. Amsterdam: North- Holland Publishing Company. Colloq. Math. Soc. János Bolyai. 56, 573-585 (1992).

The codimension reduction problem deals with the question whether a given submanifold is contained in a proper totally geodesic submanifold of the ambient space. Considerable contributions to this problem are due to C. B. Allendoerfer and J. Erbacher in case the ambient space is Euclidean or of constant curvature, respectively. In the present paper the author studies the codimension reduction problem in complex projective space $\mathbb{C}P^m$. The method is to use the Hopf map $S^{2m+1} \to \mathbb{C}P^m$ and to apply the results of J. Erbacher. The results obtained here generalize a previous one by *T. E. Cecil* [Nagoya Math. J. 55, 5-31 (1974; Zbl 0273.53017)] concerning complex submanifolds in $\mathbb{C}P^m$.

For the entire collection see [Zbl 0764.00002].

Reviewer: J.Berndt (Köln)

MSC:

53C40 Global submanifolds
53C55 Global differential geometry of Hermitian and Kählerian manifolds

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codimension reduction problem; totally geodesic submanifold; Hopf map