**Janyška, Josef**

**Remarks on the Nijenhuis tensor and almost complex connections.** (English) Zbl 0738.53014

Arch. Math., Brno 26, No. 4, 229-239 (1990).

Given a (1,1)-tensor field $S$ the author determines all natural (1,2)- tensor fields of the same type as the Nijenhuis tensor $N_S$. He shows the nonexistence of affine connections polynomially naturally induced from $S$. Also all connections $\tilde{\nabla}$ naturally induced from a given symmetric affine connection and from $S$ such that Tor $\tilde{\nabla} = \lambda N_S$ ($\lambda \in R$) are found; and conditions under which these $\tilde{\nabla}$ are almost complex connections are deduced.

The paper is related to and has been motivated by a result of *S. Kobayashi* and *K. Nomizu* [Foundations of differential geometry. Vol. II. (Moskva: "Nauka" 1981; Zbl 0526.53001)] giving for every almost complex manifold with an almost complex structure $J$ an almost complex affine connection $\tilde{\nabla}$ such that Tor $\tilde{\nabla} = \frac{1}{8} N_J$. The paper under review shows that besides Kobayashi and Nomizu's example there are still many naturally induced solutions.

Reviewer: L.Tamássy (Debrecen)

**MSC:**

53C05 Connections (general theory)
53C15 General geometric structures on manifolds (almost complex, almost product structures, etc.)

Cited in **2** Reviews

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