MR1689463 (2000d:58008) 58B99 (46L99)

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On nonlinear projections of vector fields. (English summary)

*NLA*98: *Convex analysis and chaos* (*Sakado*, 1998), 47–54, *Josai Math. Monogr.*, 1, *Josai Univ.*, *Sakado*, 1999.

Let E, D and U respectively denote a Banach space, a domain in E and an open neighbourhood of $\overline{D}$. Assume that the boundary ∂D of D is a Lipschitzian submanifold of U of codimension 1. Let $P \colon U \to E$ be a (not necessarily linear) $\mathcal{C}^1$-projection from U onto a $\mathcal{C}^1$-submanifold of U, and let $X \colon U \to E$ be a bounded locally Lipschitzian vector field in U. Under these conditions, the author shows that if X is complete in $\overline{D}$ then its projection $Y \colon = P'X$ is complete in $P(U) \cap \overline{D}$. Applications to the contractive projection problem in Jordan theory are presented. For complex Banach spaces that problem was solved by the author in 1982, and for real Banach spaces it has been solved (in a yet unpublished paper) by the author himself. The results seem to be interesting and new even in the finite-dimensional context. Unfortunately, the article has some linguistic deficiencies, some inaccurate definitions and frequent misprints in mathematical formulas.

{For the entire collection see MR1689459 (2000a:00022)}

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