

**MR1406360 (97e:58061)** [58E30](#) [49K10](#)

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**A first order prolongation of the conventional space. (English summary)**

*Differential geometry and applications (Brno, 1995)*, 403–415, *Masaryk Univ., Brno*, 1996.

Let  $P^2M(M, G_m^2)$  be the second-order frame bundle of a manifold  $M$  and  $T^rM = J_0^r(\mathbf{R}, M)$  be the  $r$ th-order frame bundle of  $M$ . The author first constructs a map  $TP^2M/G_m^2 \rightarrow T^3M$ . Then he defines a second-order connection as a map  $T^2M \rightarrow TP^2M/G_m^2$  over the identity of  $TM$ . Such a connection is said to be stable or quasi-stable if it projects into the identity of  $T^2M$  or into the space of contact  $(1, 2)$ -elements, respectively. This machinery is applied to a special type of the inverse variational problem in (pseudo-)Euclidean 3-space.

{For the entire collection see [MR1406316 \(97c:53004\)](#)}

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