10.1.2 The connection one-form

In practical computations, we need to separate into and in a systematic way. This can be achieved by introducing a Lie-algebra-valued one-form called the connection one-form.

Definition 10.2. A connection one-form is a projection of onto the vertical component . The projection property is summarized by the following requirements,

(i)

(ii)

that is, for ,

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Define the horizontal subspace by the kernel of ,

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