

Embedding formalism and high-order variational integrator

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SUMMARY

We provide a general framework of the so-called embedding formalism. We focus on the differential, integral and variational embeddings. Precisely, we study the preservation of variational structures Lagrangian using such framework. Then, we develop a high-order calculus of variations in order to derive the high-order discrete Euler-Lagrange equation. We compare our construction with the *Marsden-West approach* [1].

Keywords: High-order variational integrators, Lagrangian system, Embedding formalism.

AMS Classification: First code, second, third

References

- [1] J. E. MARSDEN AND M. WEST. Discrete mechanics and variational integrators. **10**(1), pp. 357 – 514, 2001.

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