

## **Hamel's Formalism and Constrained Mechanics**

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Splitting up the configuration and velocity measurements was pioneered by Euler in 1750s in his study of the dynamics of rigid body and fluid. This use of 'nonmaterial velocity' influenced greatly the development of mechanics. In 1904, Hamel extended this approach from the rigid body setting to arbitrary finite degree of freedom mechanical systems. The talk will give an overview of Hamel's formalism with an emphasis on integral variational principles along with applications to continuum mechanics and structure-preserving integration of constrained systems.