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The generalized- α method is numerical algorithm for the integration of mechanical systems that can be interpreted as a generalization of other popular algorithms such as the Newmark- β . It is quite popular among those working on flexible multi body dynamics due to its unconditional stability and frequency-dependent dissipation properties, which allows it to eliminate undesirable high-frequency oscillations that may otherwise compromise the accuracy or the convergence speed of a simulation.

We wondered how could variational methods offer similar advantages by including simple additional forcing terms. This poster is an exploration of this, where we use the wave equation as a model problem. By discretising it using variational methods and inserting dissipative terms, we study their behavior and compare them to analogous results from the generalized- α .

Joint work with Sigrid Leyendecker.