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Kevin Ahrendt (kahrendt@mines.edu), **Areeba Ikram** (aikram@mines.edu) and **Rocco Marchitto*** (rmarchitto@mymail.mines.edu). *Sturm-Liouville Problems in Discrete Nabla Fractional Calculus*. Preliminary report.

We consider a discrete nabla fractional Sturm-Liouville boundary-value problem in the Caputo sense. We prove basic properties of the system including existence of solutions and develop analytical approximations to the system solutions. Furthermore, eigenvalue results analogous to continuous classical Sturm-Liouville systems are introduced and developed. Finally, we expound computational aspects and develop illustrations of sample solutions to the system. (Received September 17, 2019)