Basic Study on Performance Upgrade of Pantograph Using Variable Stiffness

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In this report, the author proposes a new technique to improve compliance characteristics of pantographs. For this purpose, the pan springs are replaced with variable stiffness device. This report describes the result of the numerical simulation of dynamic behavior of the pantograph with the variable stiffness mechanism that contacts with the overhead contact wire, and discusses the effect of the device to the compliance characteristics. The report also proposes the variable stiffness mechanism that is comprised of two air springs facing each other, and investigates its availability theoretically and experimentally.