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Ciliary locomotion in presence of boundaries SAIKAT JANA, Engineering Science and Mechanics, Virginia Tech, SOONG HO UM, Materials Science & Engineering, GIST Republic of Korea, SUNGHWAN JUNG, Engineering Science and Mechanics, Virginia Tech — Micro-organisms in nature navigate through a variety of fluidic geometries and chemical conditions. We investigate the effect of confined spaces in nature by introducing *Paramecium Multimicronucleatum* in two different configurations: a capillary tube & a wavy PDMS channel. *Paramecium* swims by creating the metachronal waves due to ciliary beating. The influence of the walls on *Paramecia* is characterized by measuring the velocity and observing the ciliary beating pattern. Theoretically, we also model the system by solving the stream-function with a pressure gradient. The theoretical and experimental observations are compared and conclusions are drawn about the change in the swimming characteristics as compared to free swimming without the boundaries.

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