

## Traveling wave를 이용한 압전 선형 초음파 모터

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### Piezoelectric ultrasonic linear motor by traveling wave

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**Abstract** : This paper represents a piezoelectric ultrasonic linear motor by traveling wave. The motor which is composed of two piezo ceramics, elastic body, and connecting tip is driven by the frictional force between the connecting tip and the linear motion guide. longitudinal and flexural vibrations are made by traveling wave which is generated when the ultrasonic electrical signals with 90 degree phase difference are applied to two ceramics. These vibrations contribute to elliptical motion by mixed mode between longitudinal and transverse mode. A linear movement can be easily obtained by using the elliptical motion. In this paper, the piezoelectric actuator has been intensively simulated by using ATILA to achieve an optimized elliptical motion of it. We could get the elliptical motion from actual experiment through the simulated result.

**Key Words** : Piezoelectric(압전), ultrasonic(초음파), linear motor(선형 모터), traveling wave(진행파), elliptical motion(타원 운동)