

Vibroacoustic analyses and strategies for the noise attenuation of Linear Stepping Piezoelectric Actuators

Tomasz G. Zielinski

Institute of Fundamental Technological Research (IPPT PAN)

Fabien Dubois

Cedrat Technologies

Linear Stepping Piezoelectric Actuators (LSPAs) are inertial piezoelectric motors able to reach a long stroke with high resolution and precision. On the other hand, LSPAs are rather noisy which may become a serious problem in some applications. To investigate this problem vibroacoustic analyses were accomplished for some relevant parts of an LSPA produced by CEDRAT Technologies, as well as some experimental test were carried out in order to identify the noise origin and level. A few strategies were proposed for attenuating the noise of LSPA, namely: a re-design concept, vibration decoupling, acoustic isolation, and new actuation signals.