

Accepted Manuscript

Radial modes of laterally stiffened piezoelectric disc transducers for ultrasonic collimated beam generation

Vamshi Krishna Chillara, Cristian Pantea, Dipen N. Sinha



PII: S0165-2125(17)30093-8
DOI: <http://dx.doi.org/10.1016/j.wavemoti.2017.07.005>
Reference: WAMOT 2179

To appear in: *Wave Motion*

Received date: 27 April 2017
Revised date: 3 July 2017
Accepted date: 8 July 2017

Please cite this article as: V.K. Chillara, C. Pantea, D.N. Sinha, Radial modes of laterally stiffened piezoelectric disc transducers for ultrasonic collimated beam generation, *Wave Motion* (2017), <http://dx.doi.org/10.1016/j.wavemoti.2017.07.005>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- We numerically investigate the resonant and vibration characteristics of radial modes of laterally stiffened piezoelectric discs.
- Bessel-like vibration pattern of these modes was observed to alter with increasing lateral stiffening.
- Ultrasonic beam profiles from these radial modes were obtained using a coupled acoustic-structure interaction model.
- Lateral stiffening results in a well-collimated beam with significant reduction in side-lobes.
- Collimated beam from radial modes of laterally stiffened piezo-discs find applications in low-frequency imaging through highly attenuating materials.

Download English Version:

<https://daneshyari.com/en/article/8256812>

Download Persian Version:

<https://daneshyari.com/article/8256812>

[Daneshyari.com](https://daneshyari.com)