ABSTRACT

Ae sensing method is based on using a special fiberoptic probe for detection of acoustic/ultrasound pressure in an immersion medium. The developed system is highly sensitive in detecting ultrasound waves up to 100MHz, for imaging of micro structures and more. For applications up to 100MHz, without spatial averaging corrections, the probe tip is modified by reducing the fiber diameter to 7 um or less. Also, to maximize acousto-optic interaction, the probe tip, not just its end face, may be coated with a thin layer of metallic material. This thin film coating satisfies partial transparency of the metallic coating. The coating thickness may range from 2nm to 10nm or others depending on the type of the coating material. The probe detects the pressure of acoustic and/or ultrasound waves propagating within an immersion medium, whenever the probe tip is immersed inside the medium, and having a reasonable immersion contact surface.