

A Comparison of Underwater Acoustic Performance of Piezoelectric Ceramic Based Cymbal Projectors

Dr. Thomas R. Howarth

NAVSEA Division, Newport
trhowarth@npt.nuwc.navy.mil 401.832.2544

Dr. James F. Tressler

Naval Research Laboratory
tressler@pa.nrl.navy.mil 202.767.2367

Abstract: The U. S. Navy is investigating cymbal-based projector panels for consideration of use on autonomous underwater vehicles (AUVs). Depending upon their configuration, they can be formed into thin panels that can cover low frequencies or extended frequency bands. A recent study compared different piezoceramic based cymbals placed into an oil-filled matrix. This study examined the acoustic performance of 0.5” diameter disks of PZT-4, PZT-5H and PZT-5A cymbals as well as 0.75” PZT-5H disks. The cymbals are class V flexensional designs with titanium caps. This presentation will review the designs, configurations, in-air and in-water acoustic performance. This work was supported by ONR Code 321-TS.