

Repetitive Pressure-Pulse Apparatus and Method for Cavitation Damage Research

Disclosure Number

200902295

Technology Summary

The developed repetitive pressure-pulsed apparatus/method is designed to generate controllable cavitation events. Specifically, the developed apparatus/method has the ability to determine the cavitation parameters, simulate the thermal-mechanical-hydrodynamic behavior of cavitation, and estimate the cavitation damage. An intelligent apparatus equipped with proper testing procedures and able to generate the cavitation damage and determine or calibrate the parameters associated with cavitation with high precision is essential for developing advanced approaches and/or new materials to mitigate cavitation damage, especially in the high-temperature regime. The use of this apparatus/method will support efforts to elucidate some of the fundamental hydraulic-mechanical processes and the effects of cavitation on target materials. With the main focus on the controllable cavitation parameters, such as pressure cycles, as well as on damage characterization, the research associated with the developed apparatus/method will have a wide-ranging impact on several important industrial sectors and their supply chains.

Inventor

WANG, JY-AN

Materials Science and Technology Div

Licensing Contact

DETRANA, ALEXANDER G

UT-Battelle, LLC

Oak Ridge National Laboratory

Rm 139, Bldg 4500N, MS: 6196

1 Bethel Valley Road

Oak Ridge, TN 37831

Office Phone: (865) 576-9682

E-mail: DETRANAAG@ORNL.GOV

Note: The technology described above is an early stage opportunity. Licensing rights to this intellectual property may be limited or unavailable. Patent applications directed towards this invention may not have been filed with any patent office.