

Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Surface wave on a semi-toroidal water ring SUNGHWAN JUNG,
ERICA KIM, MICHAEL SHELLEY, Applied Mathematics Laboratory, Courant
Institute of Mathematical Science, NYU — We study the nature of surface waves
on a semi-toroidal ring of water. We create this fluid shape by patterning a glass
plate with a hydrophobic film which confines the fluid to a precise geometric region.
To excite the system, we vibrate the supporting plate up and down, thus accelerat-
ing/decelerating the fluid ring along the toroidal axis. When the amplitude of the
driving acceleration is sufficiently large, the semi- toroidal water surface becomes
unstable to azimuthal and radial waves whose character is constrained by the con-
straining geometry, and we investigate the dependence of the different surface wave
patterns on driving amplitude and frequency.

Sunghwan Jung
Courant Institute of Mathematical Science

Date submitted: 10 Aug 2005

Electronic form version 1.4