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**Saad Qadeer\*** (saad.qadeer@berkeley.edu) and **Jon Wilkening**. *Simulating Faraday Waves in a Cylinder*.

We numerically demonstrate the Faraday wave phenomenon on a cylinder for an incompressible and irrotational fluid. We solve the free surface evolution equations in time using a high order Spectral Deferred Corrections method. Meanwhile, we adapt the Transformed Field Expansion technique to a cylindrical geometry and couple it with a spectral method to rapidly compute the non-local Dirichlet-to-Neumann operator with high accuracy. The results validate the theoretical results established previously with further avenues open to attack. (Received September 23, 2017)