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**Vera Mikyoung Hur\*** (verahur@math.uiuc.edu). *Limiting Stokes waves in constant vorticity flows.*

In an irrotational flow, it is well-known that the so-called wave of greatest height or extreme wave has a 120-degree angle at the crest. In constant vorticity flows, by contrast, recent numerical evidence suggests that a limiting configuration is either an extreme wave, like in an irrotational flow, or a touching wave, enclosing a bubble of air at the trough, particularly, the celebrated Crapper's wave in the zero gravity limit (even though there is no surface tension). I will explain how to perturb the Crapper wave by gravity to show the existence of overturning and touching Stokes waves. Also I will present numerical evidence that an almost extreme wave has a boundary layer near the crest, where the angle increases sharply from zero to  $30.3787032466$  degrees (to compare, the maximum angle of the extreme wave is 30 degrees), regardless of the vorticity, followed by oscillations like the Gibbs phenomenon. Joint with S. Dyachenko, D. Silantyev, and M. Wheeler. (Received August 30, 2021)