1171-76-132 **Jon Wilkening*** (wilkening@berkeley.edu). *Spatially quasi-periodic water waves.*

We present a framework to compute and study two-dimensional water waves that are quasi-periodic in space. This means they can be represented as periodic functions on a higher-dimensional torus by evaluating along irrational directions. The nonlocal Dirichlet-Neumann operator is computed using conformal mapping methods and a quasi-periodic variant of the Hilbert transform. We consider both traveling waves and the general quasi-periodic initial value problem. Many examples will be given to illustrate the types of behavior that can occur. (Received August 09, 2021)