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**Challenges in the beyond-all-orders asymptotics of
wave and free-surface problems**

Since the late 90s and early 00s, exponential asymptotics has been successful in resolving a number of challenges in continuum mechanics and especially fluid mechanics. This includes problems in viscous fingering, generalised solitary waves of the Korteweg-de Vries, and gravity and capillary free-surface waves. In this talk, I discuss some of the challenges that lie ahead in beyond-all-orders asymptotics related to waves and free-surface flows. These challenges may include issues on the modelling of waves around smoothed bodies, three-dimensional hydrodynamics, and time-dependent flows.