Flow structure beneath rotational water waves with stagnation points

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In this talk we are going to analyze the consequences, at the interior of the fluid, of the interaction between the free surface wave and a shear linear current. A conformal map is used to extract this information. The numerical formulation allows us to compute the particle trajectories and calculate accurately the location of stagnation points. We show that the dynamical system for the trajectories in the wave frame of reference undergoes two bifurcations as the vorticity and the surface are varied.