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*Branch Cut Singularity of Stokes Wave.*

Stokes wave is the fully nonlinear gravity wave propagating with the constant velocity. We consider Stokes wave in the conformal variables which maps the domain occupied by fluid into the lower complex half-plane. Then Stokes wave can be described through the position and the type of complex singularities in the upper complex half-plane. We identified that this singularity is the square-root branch point. We reformulated Stokes wave equation through the integral over jump at the branch cut which provides the efficient way for finding of the explicit form of Stokes wave. (Received February 10, 2014)