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**A modified dnoidal model for internal solitary waves and its effect  
on sound transmission**

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A new solution of KDV equation in the form of dnoidal function is developed in this paper. Based on this new solution, a modified solution of KDV equation with slowly varying parameters in the form of dnoidal function is derived. Numerical simulation shows that the wave packets scale of the modified solution is only 1/5 to the solution in the reference (JASA, 108(3), pp957-972), and also the equilibrium positions are different. Comparing the solutions with slowly varying parameters with the published data of internal solitary waves in the ocean indicates that the modified solution is better for the description of the dnoidal wave. Based on the modified solution of KDV equation with slowly varying parameters, a modified model for dnoidal wave is given and its effect on sound transmission is discussed in this paper.