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**Dambaru D Bhatta\*** (bhattad@utpa.edu), Department of Mathematics, The University of Texas-Pan American, 1201 W. University Drive, Edinburg, TX 78541. *Wave loads due to diffraction by an elliptic structure.*

We will present wave diffraction on an elliptic structure in water of finite depth. The structure considered here is an elliptical cylinder which is fixed, bottom-mounted, vertical and surface-piercing. First we will present the boundary value problem in terms of velocity potential function. We assume the fluid to be incompressible and irrotational. The solution of this boundary value problem is obtained in terms of Mathieu and Modified Mathieu functions using elliptical coordinates and separation of variables method. Then we present the formula to compute wave loads on the cylinder using this solution. (Received September 26, 2005)