962-34-1287 **Bilal Chanane*** (`chanane@kfupm.edu.sa`), Professor B. Chanane, KFUPM, Mathematical Sciences Department, 31261 Dhahran, Saudi Arabia. *Eigenvalues of Regular Fourth Order Sturm-Liouville Problems Using Sampling Theory.*

Sampling theory has been used recently to compute the eigenvalues of second order Sturm-Liouville problems. We shall demonstrate that the method is capable of approximating the eigenvalues of fourth order problems. we shall show that transforms of the solution of the associated initial value problem and its derivatives are analytic in a strip containing the real axis and are square integrable over the real line. Thus, they can be recovered from their samples at a countable number of points. The zeroes of the reconstructed boundary function are the fourth roots of the sought eigenvalues. (Received October 03, 2000)