1040-41-204 **R. T.W. Martin*** (rtwmartin@math.uwaterloo.ca), 22-325 Erb St. W., Waterloo, Ontario N2L 1W4, Canada. *Invariant subspaces of Sturm-Liouville operators and de Branges spaces.*

A bandlimit can be viewed as a cutoff on the spectrum of the self-adjoint derivative operator $D := i\frac{d}{dx}$ on $L^2(\mathbb{R})$. Namely, the space $B(\Omega)$ of Ω-bandlimited functions is just the range of the spectral projection $\chi_{[-\Omega,\Omega]}(D)$. It is therefore natural to ask if, given a more general differential operator D', *e.g.*, $D' := \frac{d}{dx}p(x)\frac{d}{dx} + q(x)$, whether the subspaces $B(D',\Omega) := \chi_{[-\Omega,,\Omega]}L^2(\mathbb{R})$ obtained by cutting off the spectrum of D' will have the same desirable properties as the $B(\Omega)$. Namely, will elements of $B(D',\Omega)$ obey a sampling formula? It is known that $B(\Omega)$ can also be viewed as a de Branges space of entire functions, and that most de Branges spaces obey a sampling formula. Since $B(\Omega)$ is both a de Branges space and an invariant subspace of a differential operator, we seek to answer the previous question by investigating whether the invariant subspaces $B(D',\Omega)$ of more general differential operators could also be de Branges spaces. (Received February 14, 2008)