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**Yueshi Qin\*** (yqin@albany.edu), 29 Niblock Ct, Fl 1, Albany, NY 12206, and **Rongwei Yang**. *A Characterization of Submodules via Beurling-Lax-Halmos Theorem.*

Shift invariant subspaces in the vector-valued Hardy space  $H^2(E)$  play important roles in Nagy-Foias operator model theory. A theorem by Beurling, Lax and Halmos characterizes such invariant subspaces by operator-valued inner functions  $\Theta(z)$ . When  $E = H^2(\mathbb{D})$ ,  $H^2(E)$  is the Hardy space over the bidisk  $H^2(\mathbb{D}^2)$ . This paper shows that for some well-known examples of invariant subspaces in  $H^2(\mathbb{D}^2)$ , the function  $\Theta(z)$  turns out to be strikingly simple. (Received September 25, 2012)