Martha Lee H Kilpack* (mlhkilpack@mathematics.byu.edu) and Arturo Magidin. For what finite lattices does the lattice of closure operators form a subgroup lattice?

A lattice $L$ is called algebraic if it is generated by the compact elements of $L$. For each algebraic lattice $L$ there exists an algebraic structure $A$ such that the lattice of subalgebras of $A$ is algebraic to $L$. We will call the algebraic lattice $L$ a subgroup lattice if $L$ is isomorphic to a subgroup lattice $\text{Sub}(G)$ for some group $G$.

For a finite lattice $L$ the closure operators which act on $L$ form an algebraic lattice $\text{c.o.}(L)$. Extending the results for when $L$ is a finite subgroup lattices, we will show for any finite lattice $L$ that $\text{c.o.}(L)$ is a subgroup lattice if and only if $L$ is a chain (totally ordered set). (Received September 13, 2016)