A topological space is said to be spectral if it satisfies that is $T_0$, quasicompact, has a basis of compact open subsets which is closed under finite intersection, and all irreducible closed subsets are closures of points (i.e. sober). In Prime ideal structure in commutative rings, Trans. Amer. Math. Soc. 142 (1969) M. Hochster characterized spectral topological spaces showing that a topological space $X$ is spectral if and only if it is homeomorphic to $Spec(R)$ for some commutative ring $R$. Inspired by that result, we are interesting in the behavior of a spectrum for a module $M$.

In [MSZ15], we studied a prime spectrum for a module through some associated frames, and we gave a module counterpart of the well-known result that in a commutative ring the set of semiprime ideals, that is, radical ideals is a frame. In [MMSZ17], we continue this work, we define semiprimitive submodules and we prove that they form a spatial frame canonically isomorphic to the topology of Max$(M)$. Also, we study the soberness of a prime spectrum for $M$ and for the subspace Max$(M)$ in terms of the point space of that frame.

The purpose of this talk is to present some of these results. This is a jointly work with M. Medina-Barcenas, L. Morales-Callejas and A. Zaldivar-Corichi.

REFERENCES


