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***Cyclic and simplicial cohomology of  $\ell^1(S)$  for some semigroups***

ABSTRACT. The talk will be mostly about  $\ell^1(S)$  when  $S$  is a band semigroup, and is the result of joint work with Yemon Choi and Michael White. The methods used are partly inspired by the work on  $\ell^1(N)$ : cyclic cohomology and the Connes-Tsygan long exact sequence are used. However, the geometrical nature of band semigroup makes the problem much harder and, in many ways, much more interesting. The use of homological machinery is crucial but this is not where the difficulty lies: building explicit maps with given properties, using some specific features of band semigroups, is where the difficulties are. Comparing this with earlier work, cobounding is not obtained with one (averaging) map but rather through an iteration which gradually increases the set on which a cochain is cobounded. We will also discuss generalizations of these results to other semigroups including Clifford.