

1100-16-371

**Alexander A Young\*** (young.mathematics@gmail.com). *Constructing “slow” algebra counterexamples.*

For any (non-commutative) algebra  $A$  generated by a finite dimensional vector space  $V$ , the *growth* of  $A$  is the monotonically increasing function  $f_n(A) = \dim V^n$ . Algebras can be stratified into classes of growth, as a refinement of the Gelfand-Kirillov dimension. A similar concept can be examined in groups by connecting it with the growth of its group ring.

Lately, there have been a number of unexpected counterexamples to conjectures about the possible growths of certain types of algebras (such as nil algebras or algebras that are their own Jacobson radical). A particular method of constructing complicated but provably “slow” algebras was originally assembled by Agata Smoktunowicz and T H Lenagan, and refined by them and other authors in subsequent papers. This talk will give a brief run-through of how it works, and the open problems it has so far been unable to do. (Received February 10, 2014)