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INTRODUCTION

This issue is the proceedings of a conference "New Developments in Noncommutative Algebra and its Applications" held to celebrate the 60th birthdays of Kenny Brown and Toby Stafford, at Sabhal Mòr Ostaig on the Isle of Skye in June 2011. The papers in this issue, by some of the leading noncommutative algebraists in the world, represent several of the topics in which Kenny and Toby work.

A great deal of Kenny Brown's research has involved the development of homological and localization techniques for noncommutative noetherian rings. Ever since his spectacular first paper, which answered the famous zero divisor question for group rings of abelian-by-finite groups by bringing together homological and ring-theoretic techniques, Kenny has applied general theory to important examples. Beyond group algebras, he has worked on rings with large centres, introducing with Hajarnavis the notion of a homologically homogeneous ring, which, twenty years later, has become a central notion in the theory of noncommutative crepant resolutions; he has written on localization for enveloping algebras of soluble Lie algebras and on Grothendieck groups in invariant theory; and his work with Goodearl on quantum groups with generic parameter laid out the structure on which much of the later research built. Over a prolonged period, Kenny has advocated the study of infinite dimensional Hopf algebras from the point of view of noetherian ring theory, uncovering beautiful homological properties which he then brought to bear on problems in diverse areas such as quantum groups at roots of unity and Calabi–Yau algebras. Recently, he has proved fundamental theorems in noncommutative Iwasawa theory and in the representation theory of symplectic reflection algebras. Beyond his own research, Kenny has served mathematics formidably – in Glasgow, Scotland and the UK – taking a number of important and difficult roles at crucial times. Kenny is an inspiration; his influence extends well beyond mathematics.

The work of Toby Stafford has touched an equally large number of topics in the theory of noncommutative noetherian rings and related subjects. His early theorem that all right ideals of the Weyl algebras are generated by at most two elements remains striking today. More generally, he proved fundamental results on the number of generators of modules and studied the K-theory of noncommutative rings. His work on the structure of rings of differential operators has spanned his entire career, connecting in recent years with the subject of Cherednik algebras. His contributions to the theory of polynomial identity rings include the celebrated Small–Stafford–Warfield theorem that all algebras of Gelfand–Kirillov dimension one are PI. Since the emergence of the field of noncommutative projective geometry, Toby has been a leading figure in that subject, producing seminal work with Artin on the structure of noncommutative projective curves, and the authoritative survey of the subject written with Van den Bergh. He also has a truly remarkable talent for constructing interesting (counter)examples of all kinds. Toby has been influential in his mentoring of graduate students and postdocs, all of whom could attest to the impact he has had on their writing and sense of mathematical taste, as well as to his unfailing willingness to

continue to offer advice at any stage of their careers. He has also served as an organizer for many important meetings and workshops in the subject.

It is a great pleasure to dedicate this volume to Kenny Brown and Toby Stafford, our colleagues, mentors, and friends.

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