Talks Since Initial Appointment

Invited Talks

- *Quasipolynomial Growth of Betti Sequences* *May 2020*
  Zoom Special Session on DG Methods in Commutative Algebra and Representation Theory, Virtual Conference.

  Abstract: *Let Q be a regular local ring and I an ideal generated by a regular sequence of c elements in the square of the maximal ideal. It is known that over the complete intersection $R = Q/I$ that any finitely generated module M has Betti numbers eventually given by quasi-polynomial of degree less than c . That is, there are integer-valued polynomial functions p_+^M and p_-^M with the same leading term such that $\beta_{2i}^R(M) = p_+^M(2i)$ and $\beta_{2i+1}^R(M) = p_-^M(2i+1)$ for sufficiently large i. We will show that if q is the height of the ideal generated by the quadratic initial forms of I in the associated graded ring of Q, then the degree of $p_+^M - p_-^M$ is less than $c - q - 1$.*

- Quasipolynomial Growth of Betti Sequences over Complete Intersections *March 2020*
  AMS Sectional meeting, special session on Homological Methods in Commutative Algebra, Medford, Massachusetts
  Canceled due to global pandemic

- *Growth of Betti Sequences and the Homotopy Lie Algebra* *November 2019*
  University of Texas at Arlington Algebra Seminar, Arlington, Texas.

  Abstract: *It is known that the Betti numbers for any finitely generated module over a local complete intersection ring grow on the order of a polynomial. Further, it can be shown that, for large enough degree, there are two polynomials of interest: one explicitly giving the even Betti numbers and one giving the odd Betti numbers. The aim of this talk is to show a bound on the discrepancy of these two polynomials for every finitely generated module over a complete intersection with respect to an invariant of the ring called its "quadratic codimension". We will also make use of a homological tool called the homotopy Lie algebra. This is joint work with Lucho Avramov and Mark Walker.*

- *Growth of Betti Sequences over a Complete Intersection* *October 2019*
  Route 81 Mathematics Conference, Kingston, Ontario, Canada.

  Abstract: *It is known that the Betti numbers for any finitely generated module over a local complete intersection ring grow on the order of a polynomial. Further, it can be shown that, for large enough degree, there are two polynomials of interest: one explicitly giving the even Betti numbers and one giving the odd Betti numbers. The aim of this talk is to show a bound on the discrepancy of these two polynomials for every finitely generated module over a complete intersection with respect to an invariant of the ring called its "quadratic codimension". This is joint work with Lucho Avramov and Mark Walker.*