Classical knot concordance and blanchfield duality

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Abstract. In 1997, T. Cochran, K. Orr, and P. Teichner defined a filtration F_n on the classical knot concordance group, called the (n)-solvable filtration, that is related to whether a knot bounds an n-stage symmetric grope in the 4-ball. The successive quotients of this filtration are known to be non-trivial at every stage. We show the successive quotients $F_n/F_n + 1$ have infinite rank for every n. The knots that give this generation are closely related to an iterated family of examples first studied by P. Gilmer. To prove our result we use Cheeger-Gromov L^2 rho-invariants associated to the derived series of a knots. This is joint work with T. Cochran and C. Leidy.