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Title: Blowing up and down with knot traces

Abstract: Manolescu and Piccirillo recently proposed potential constructions of an exotic 4-sphere. These came in the form of knots K that if slice, then an exotic 4-sphere exists. The key property these knots have is that they share a zero surgery with a knot K' that has non-vanishing s -invariant. Here we show that the Manolescu-Piccirillo knots are not slice and rule out this exciting possibility. To do this, we show that the zero traces of K and K' become diffeomorphic after blowing up. This allows us to stably relate their slice properties and use the s -invariant of K' to show K is not slice. Despite the success of our proof, a closer examination reveals a strange coincidence among the Manolescu-Piccirillo knots that allow our proof to work. Explaining this coincidence allows us to strongly generalize our proof from the original five knots to the infinite family of zero surgery homeomorphisms that Manolescu and Piccirillo considered.