

# 0-concordance of 2-knots

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**Abstract.** A 2-knot is defined to be an embedding of  $S^2$  in  $S^4$ . Unlike the theory of concordance for knots in  $S^3$ , the theory of concordance of 2-knots is trivial. This talk will be framed around the related concept of 0-concordance of 2-knots. It has been conjectured that this is also a trivial theory, that every 2-knot is 0-concordant to every other 2-knot. We will show that this conjecture is false, and in fact there are infinitely many 0-concordance classes. We'll in particular point out how the concept of 0-concordance is related to understanding smooth structures on  $S^4$ . The proof will involve invariants coming from Heegaard-Floer homology, and we will furthermore see how these invariants can be used to shed light on other properties of 2-knots such as amphichirality and invertibility.