Notes on Futer-Purcell's inequality for genera of knots and hyperbolic knots with trivial Alexander polynomial

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Abstract: The genus of a knot is an intuitive geometric invariant for knots. However it is hard to determine in general. It is well-known that the degree of the Alexander polynomial of a knot estimates the genus of the knot from below. Recently, Futer-Purcell showed that if a diagram of a link satisfies certain several conditions then the link is hyperbolic and the genus of the link is estimated from below by some complexity of a diagram. In this talk, we introduce Futer-Purcell's inequality and construct a hyperbolic knot of higher genus but whose Alexander polynomial is trivial by using the inequality.