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## Master Thesis Defense

<u>Entitled</u>

*ALEXANDER POLYNOMIALS OF 3-BRAID KNOTS*

<u>by</u>

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<u>Date & Venue</u>

1:00 P.M.

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<u>Abstract</u>

We compute the Alexander polynomial $\Delta_L(t)$ and obtain an explicit formula for some families of alternating knots of braid index 3. We use this formula to prove that $\Delta_L(t)$ satisfies Fox's trapezoidal conjecture. This conjecture states that the coefficients of the Alexander polynomial of an alternating knot are trapezoidal. In other words, these coefficients increase, stabilize then decrease in a symmetrical way. Our main tool in this study is the Burau representation of the braid group.

**Keywords:** Alexander polynomial, Trapezoidal conjecture, alternating knots, 3-braids.