

Slice and ribbon genus

- **Slice genus** $g_s(K)$: minimum genus of a slice surface for K .
- **Ribbon genus** $g_r(K)$: minimum genus of a ribbon surface for K .
- From a ribbon surface we can construct a slice surface of the same genus $g_s \leq g_r$ [Grigsby, 2018].

Slice surface from band presentation

- Given a band presentation we can construct a ribbon surface. The Ribbon Genus depends only the number of bands k and the number of strands n : [Rudolph, 1983]
- $$g_r(K) \leq \frac{1 + rk(x) - n}{2}$$
- Furthermore
$$g_s(K) = \frac{1 + rk(x) - n}{2} \Rightarrow g_s(K) = g_r(K)$$
- **Slice-Ribbon conjecture:** Is $g_s(K) = g_r(K)$ true for all knots? (typically genus 0)