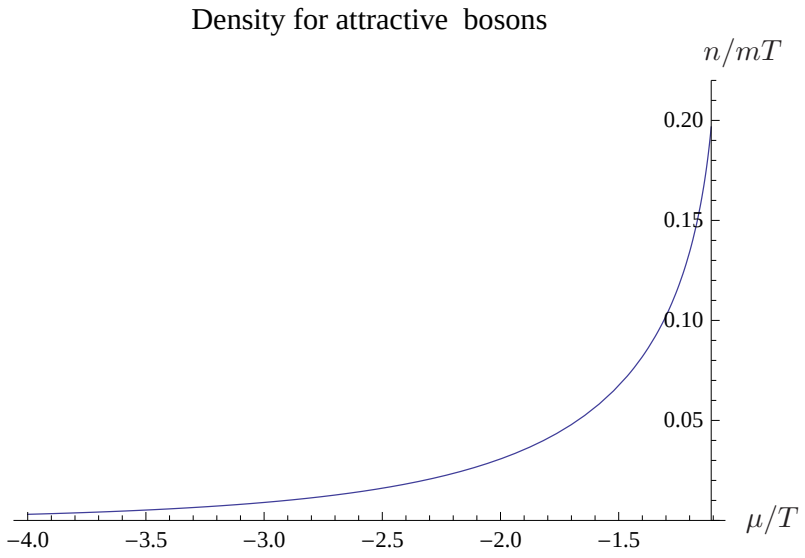

FIG. 13: Density of the attractive bosons as a function of μ/T. The origin of the axes is at $(\log z_c, 0)$.

VIII. REPULSIVE FERMIONS AND BOSONS IN 2 DIMENSIONS

A. Fermions

There are solutions to the eq. (53) for all $\mu/T < 0$, and the density is positive in this range. A plot of the density is shown in Figure 18. The density maximizes at $\mu/T \approx -0.56$, where $n/mT \approx 0.04$. This seems physically reasonable given the strong repulsion in the unitary limit. In contrast, for small coupling g, the kernel $G \approx -g$, and there are solutions for positive chemical potential. In the bosonic case, our formalism leads to a critical density of $n_c = \frac{mT}{2\pi} \log(2\pi/mg)$ for the Kosterlitz-Thouless transition[20]. The filling fractions are shown in Figure 19. Note that they are considerably smaller than in the attractive case, as expected. The scaling