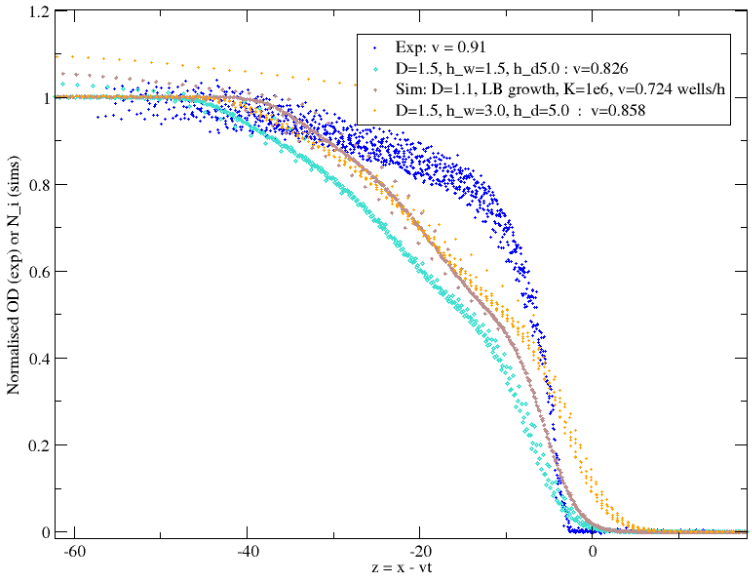

Figure 1: I plotted the shape of the wave for numerous variations of channel dimensions and values of D but the basic shape itself is not affected by these changes – it always has these odd kinks due to the odd shape of the experimentally determined LB-growth. It would be good to look at the shapes for some of the other experiments – I think you chose some that looked like the "best" waves but maybe they are not actually the best data?

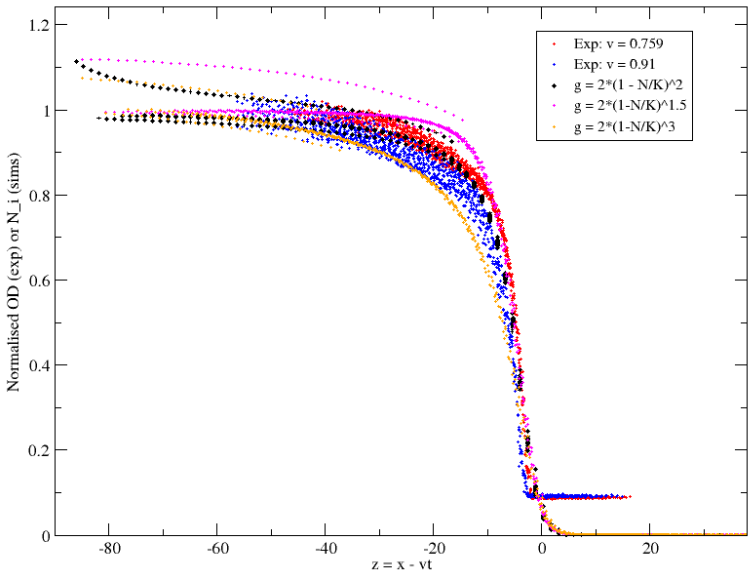

Figure 2: Since the 4 experimental waves you sent me were smooth, and it only seems to be the growth function that affects the shape, I plotted wave shapes using some smooth growth functions to see how easy it is to match the experimental shapes. The original logistic growth produced a very steep wave shape, so here I have plotted 3 "logistic-power-laws" of the form $g(N/K) = 2 * (1 - N/K)^p$, with $p = 1.5, 2.0, 3.0$. The curve with $p = 2.0$ matches the experimental shape well. A value of $p = 1.5$ leads to a shape that is too steep, while $p = 3.0$ appears not quite steep enough (due to the growth at high N/K ratios being much slower and thus carrying capacity taking a long time to be reached, Figure 3).

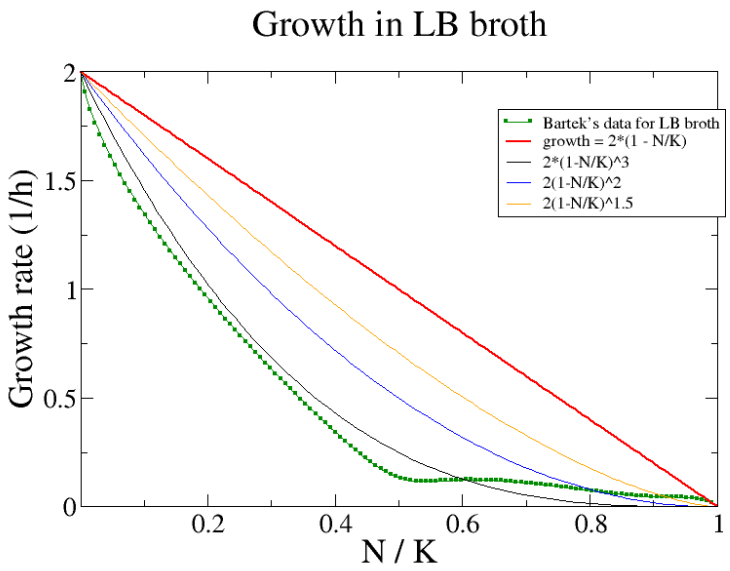

Figure 3: Growth function $g(N/K)$ for experimentally determined LB-growth, logistic growth and the 3 arbitrary "logistic-power-laws" plotted in Figure 2.

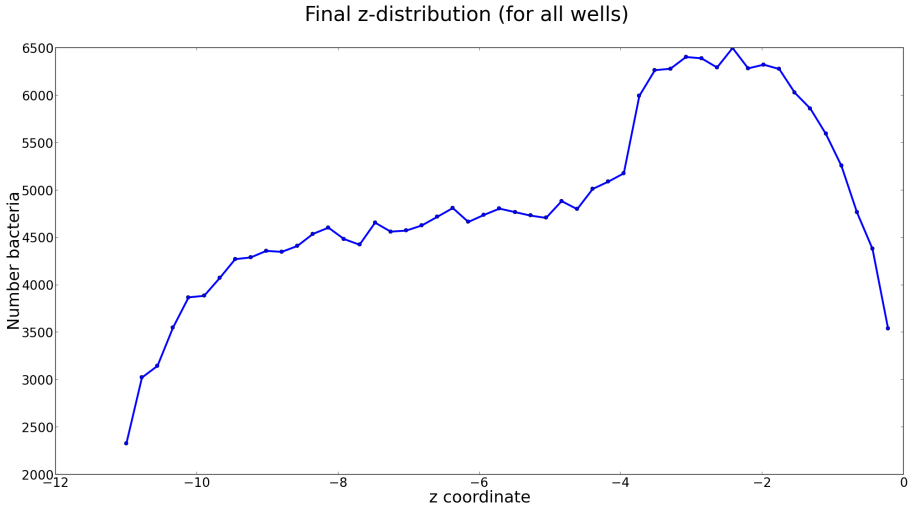

Figure 4: This plot shows the number of bacteria found at certain heights (z: $0 \to -11$ mm) counted across all 24 wells. One observation Bartek made was that the bacteria seem to be located primarily at the top of the wells, where the channels connecting the wells are found. This feature is also seen in the simulations, shown here, with bacteria being statistically more likely to be found near the top of the wells. I'm not sure why it dips so low for the highest z-values though. This could be a problem with the method in which positions are being updated (perhaps linked to the problem of bacteria being "trapped" in the end-wells?).