Supplementary Materials for "Café Latte: Spontaneous layer formation in laterally cooled double diffusive convection"

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Initial conditions

For all the simulations, the concentration field is linear in vertical direction and the temperature field is linear in horizontal direction at $t = 0$, as shown in figure S1. Besides, the motionless field is set initially as the velocity initial condition.

Three dimensional (3D) simulation

A 3D case has been run with the parameters $Ra_T = 10^8$ and $Ra_S = 10^{11}$ and $Le = 100$. Figure S2 displays two vertical cuts of the concentration field of this 3D case. We found that the flow

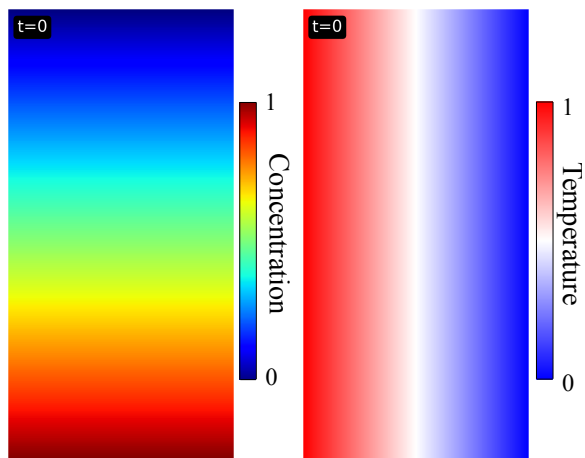structure in the x-z cut is similar to that in 2D.

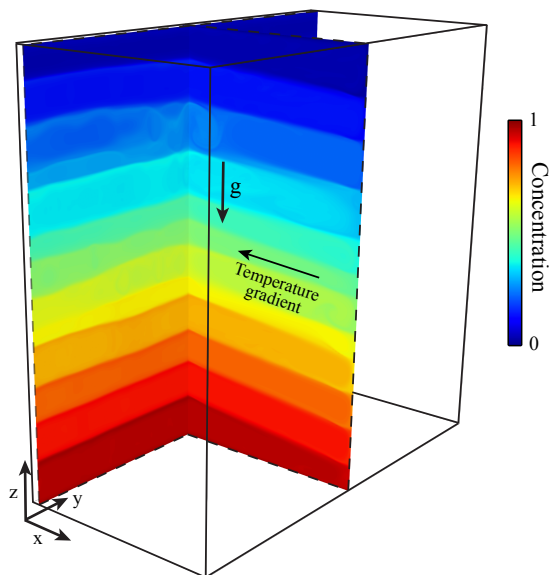Figure S1: Concentration and temperature fields at $t = 0$.

Figure S2: Concentration fields at the two vertical cuts in the 3D case with $Ra_T = 10^8$ and $Ra_S = 10^{11}$ and $Le = 100$.