Scaling of magnetic reconnection with a limited x-line extent

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Contrary to all the 2D models, where the reconnection x-line extent is infinitely long, we study magnetic reconnection in the opposite limit. The scaling of the average reconnection rate and outflow speed are modeled as a function of the x-line extent. An internal x-line asymmetry along the current direction develops because of the flux transport by electrons beneath the ion kinetic scale, and it plays an important role in suppressing reconnection in the short x-line limit; the average reconnection rate drops because of the limited active region, and the outflow speed reduction is associated with the reduction of the $\mathbf{J}\times\mathbf{B}$ force, that is caused by the phase shift between the $\mathbf{J}$ and $\mathbf{B}$ profiles, also as a consequence of this flux transport.