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Supporting Material

Stochastic actin polymerization and steady retrograde flow determine growth cone advancement

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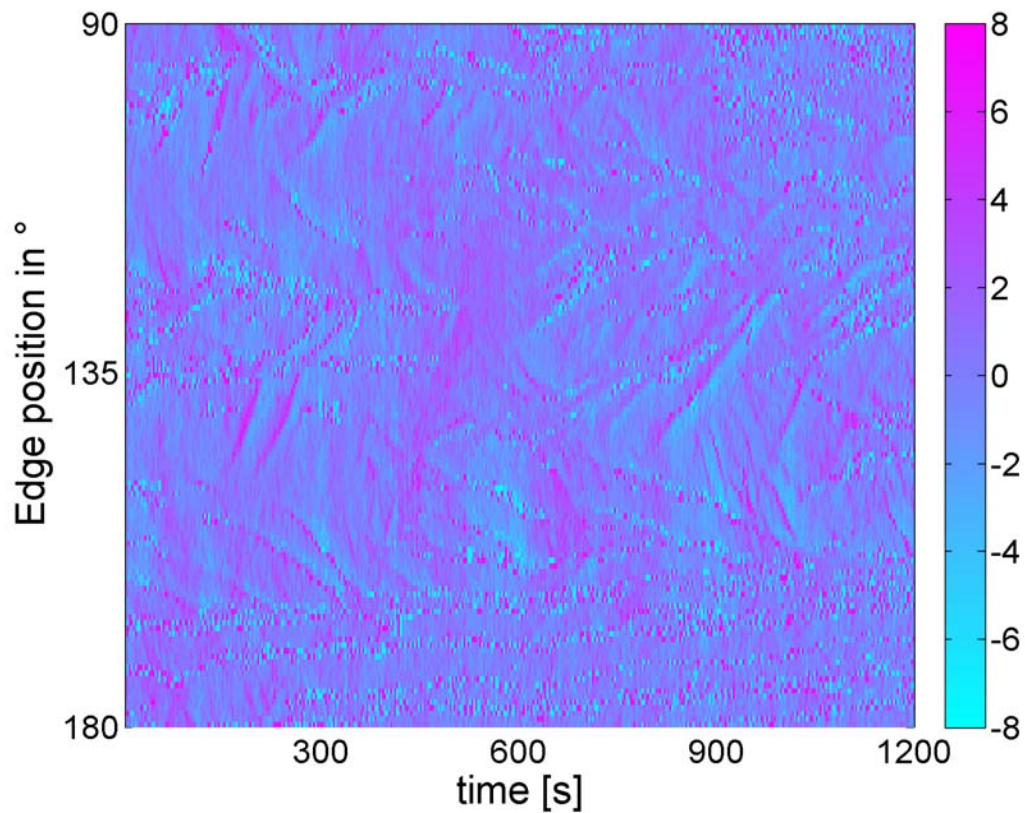


Figure S1: Spatial temporal map of the edge velocity corresponding to the growth cone presented in Fig 1A. The colormap represents velocity in $\mu\text{m}/\text{min}$. The lines represent lateral movement of filopodia travelling along the edge. In a given direction, filopodia show characteristically a drastic increase in edge velocity directly followed by a negative velocity of a similar amount. However, these jumps are not lamellipodium edge velocity but contributions from lateral filopodial growth, not considered in the presented analysis.

Value	Extension HGC (n=10)	Extension Ext (n=10)	Stationary HGC (n=32)	Units
COM Speed	0.93±0.51	0.93±0.51	0.18±0.14	μm/min
Velocity Extension	2.61±0.46	2.90±0.56	2.00±0.92	μm/min
Velocity Retraction	-1.40±0.40	-1.36±0.49	-1.58±0.75	μm/min
Polymerization “ON”	3.53±1.16	4.17±1.03	2.88±1.63	μm/min
Polymerization “OFF”	-0.44±0.17	-0.22±0.24	-0.23±0.46	μm/min
Retrograde Flow	-1.07±0.25	-1.28±0.38	-1.29±0.60	μm/min

Table S1: Measured mean values of the growth characteristics for extending and stationary NG108 growth cones. HGC stands for half growth cone meaning that the data was acquired for the front half of the growth cone as presented in Fig1 in the report, whereas Ext. stands for the direction of extension meaning that only the growth direction was used for the mean values reported. COM speed denotes the overall movement of the growth cone. Errors present the standard deviation of the respective mean value.