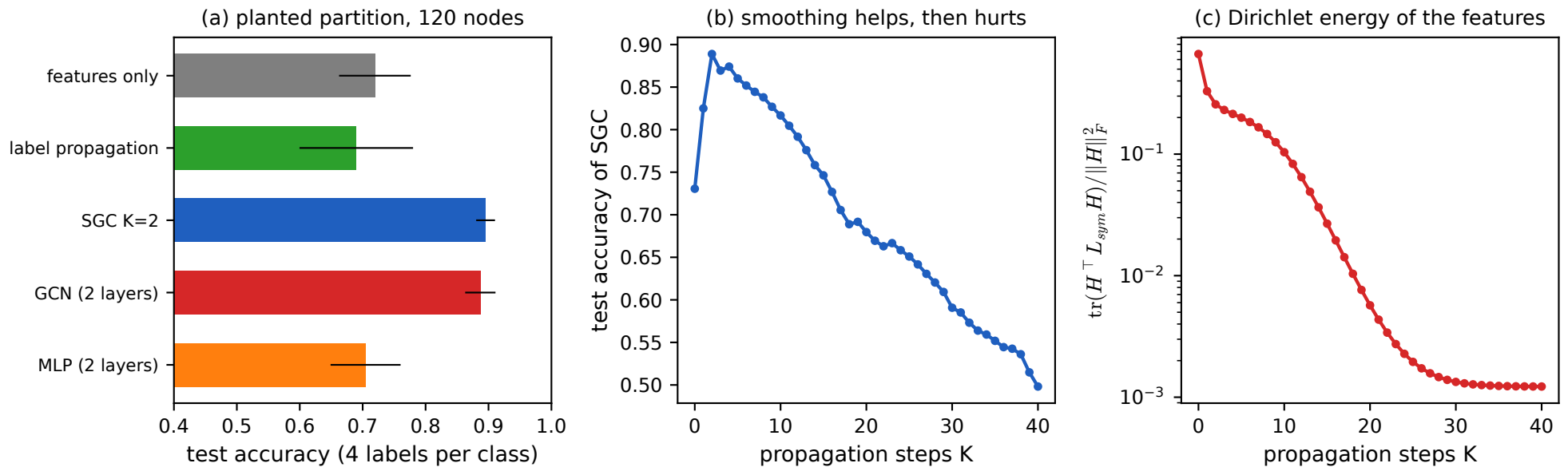

(a) planted partition, 120 nodes
features only
label propagation
SGC K=2
GCN (2 layers)
MLP (2 layers)
0.4
0.5
0.6
0.7
0.8
0.9
1.0
test accuracy (4 labels per class)
(b) smoothing helps, then hurts
test accuracy of SGC
0.90
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0
10
20
30
40
propagation steps K
(c) Dirichlet energy of the features
$\mathrm{tr}(H^\top L_{sym} H)/\|H\|_F^2$
10^{-1}
10^{-2}
10^{-3}
0
10
20
30
40
propagation steps K