

**Supplementary material of the paper: *Robustness Envelopes of Networks*, reference [36] there.**

This online supplement contains the detailed simulation results for *energy* and *sensitivity*, as referred in Section 4. All displayed values have been multiplied by  $10^{-3}$  to remove clutter. In the first columns, from top to bottom: node betweenness (Be), node closeness (Cl), node degree (Dg), node eigenvector (EV) and random attack (Rnd).

Table 1: Simulated giant component size's *energy* and *sensitivity* for multiple attack strategies.

Giant component		$G_{ER}$		$G_{WS} (p=0.1)$		$G_{BA}$		Lattice	
		$p \approx 2p_c$	$p \approx 15p_c$	$q=10$	$q=64$	$m=3$	$m=5$	20x20	100x10
Be	$\mathcal{E}(\mathcal{P}_{bot})$	474	476	471	476	476	476	476	476
	$\mathcal{E}(\mathcal{P}_{top})$	412	476	391	475	214	317	465	442
Cl	$\mathcal{E}(\mathcal{P}_{bot})$	475	476	475	476	476	476	476	476
	$\mathcal{E}(\mathcal{P}_{top})$	434	476	410	476	255	352	458	433
Dg	$\mathcal{E}(\mathcal{P}_{bot})$	474	476	469	476	476	476	390	337
	$\mathcal{E}(\mathcal{P}_{top})$	425	476	420	476	207	313	408	416
EV	$\mathcal{E}(\mathcal{P}_{bot})$	476	476	475	476	476	476	476	474
	$\mathcal{E}(\mathcal{P}_{top})$	445	476	463	476	308	384	465	464
Rnd	$\mathcal{E}_{avg}(\mathcal{P})$	463	476	434	476	436	459	327	279
	$\mathcal{I}$	11	0	33	0	36	18	36	42

Table 2: Simulated efficiency's *energy* and *sensitivity* for multiple attack strategies.

Efficiency		$G_{ER}$		$G_{WS} (p=0.1)$		$G_{BA}$		Lattice	
		$p \approx 2p_c$	$p \approx 15p_c$	$q=10$	$q=64$	$m=3$	$m=5$	20x20	100x10
Be	$\mathcal{E}(\mathcal{P}_{bot})$	162	266	123	236	145	167	42	21
	$\mathcal{E}(\mathcal{P}_{top})$	125	253	89	227	50	88	38	18
Cl	$\mathcal{E}(\mathcal{P}_{bot})$	164	267	128	238	150	170	43	21
	$\mathcal{E}(\mathcal{P}_{top})$	131	254	93	229	54	93	34	18
Dg	$\mathcal{E}(\mathcal{P}_{bot})$	163	267	125	238	146	168	34	16
	$\mathcal{E}(\mathcal{P}_{top})$	126	254	97	229	49	88	27	14
EV	$\mathcal{E}(\mathcal{P}_{bot})$	164	268	131	240	150	170	42	20
	$\mathcal{E}(\mathcal{P}_{top})$	134	255	116	231	63	100	34	15
Rnd	$\mathcal{E}_{avg}(\mathcal{P})$	148	261	106	232	123	150	27	13
	$\mathcal{I}$	8	3	10	5	15	10	2	1

Table 3: Real graph’s *energy* and *sensitivity* for multiple attack strategies.

All		Giant component size				Efficiency			
		CA	USp	EU <sub>p</sub>	EU <sub>r</sub>	CA	USp	EU <sub>p</sub>	EU <sub>r</sub>
Cr	$\mathcal{E}(\mathcal{P}_{bot})$	397	309	178	321	41.5	18.3	4.5	5.2
	$\mathcal{E}(\mathcal{P}_{top})$	135	207	182	150	12.4	8.5	5.0	2.6
Be	$\mathcal{E}(\mathcal{P}_{bot})$	407	475	190	473	42.2	20.9	4.5	6.3
	$\mathcal{E}(\mathcal{P}_{top})$	56	63	19	94	4.3	2.4	0.5	1.5
Cl	$\mathcal{E}(\mathcal{P}_{bot})$	455	476	288	474	54.7	23.1	7.7	7.5
	$\mathcal{E}(\mathcal{P}_{top})$	95	144	89	169	6.5	4.3	1.9	2.7
D <sub>g</sub>	$\mathcal{E}(\mathcal{P}_{bot})$	416	415	131	249	44.6	19.0	2.7	4.1
	$\mathcal{E}(\mathcal{P}_{top})$	78	56	13	110	7.1	2.4	0.4	1.5
R <sub>nd</sub>	$\mathcal{E}_{avg}(\mathcal{P})$	280	204	58	126	24.6	8.4	1.4	1.8
	$\mathcal{I}$	13	36	17	27	1.4	1.2	0.4	0.2