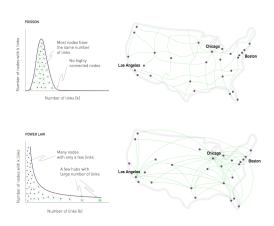
## real networks models

introduction to network analysis (ina)

Lovro Šubelj University of Ljubljana spring 2019/20

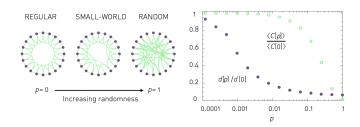
## networks scale-free

- *power-law* degree distribution  $p_k \sim k^{-\gamma}$  [Pri65]
- preferential attachment scale-free model [BA99]



## networks *small-world*

- coexistence of  $\langle C \rangle \gg 0$  and  $\langle d \rangle \simeq \frac{\ln n}{\ln \langle k \rangle}$
- *link rewiring small-world* model [WS98]



## networks references



A.-L. Barabási and R. Albert.

Emergence of scaling in random networks. *Science*, 286(5439):509–512, 1999.



A.-L. Barabási.

Network Science. Cambridge University Press, Cambridge, 2016.



D. J. de Solla Price.

Networks of scientific papers. *Science*, 149:510–515, 1965.



D. J. Watts and S. H. Strogatz.

Collective dynamics of 'small-world' networks. *Nature*, 393(6684):440–442, 1998.