

## 5. Circuit lower (and upper) bounds

See



G.S. Frandsen and P. Bro Miltersen:

*Reviewing bounds on the circuit size of the hardest functions,*  
IPL **95** (2005), p. 354–357

## 6. Non-uniform hierarchy theorem

## 7. Finer gradations among circuit classes

## 8. Circuits of exponential size

See

 [Sanjeev Arora, Boaz Barak:](#)  
*Computational Complexity — A Modern Approach*,  
p. 108–113, Cambridge University Press: Cambridge-New York-Melbourne, 2009

# Chapter VII Randomized Computation

## 1. Probabilistic Turing Machines

## 2. Some examples of PTMs

See

 [Sanjeev Arora, Boaz Barak:](#)  
*Computational Complexity — A Modern Approach,*  
p. 115–120, Cambridge University Press: Cambridge-New York-Melbourne, 2009