Desiderata for Future Hash Functions

- 1. Research agenda for future hash functions?
 - Compression functions "Provably secure" vs heuristic methods?
 - Iterative structures Any improvements on Merkle-Damgård's?
 - Parallelize; block length extension; resist multicollisions; prevent second preimage and herding attacks, etc.
 - O <u>Countermeasures</u> Which are necessary for the future hash functions?
 - Dithering, output truncation, randomize, etc.
 - Other criteria What should we explicitly specify for future hash functions?
- 2. Do we know enough yet?
 - Arguably, we began the AES process in 1997 knowing more about block ciphers than we know about hashes today
- 3. What is the best approach to develop the future hash standards?
 - A competition? What is the alternative?
 - O How often does an implementation life cycle allow us to replace hash function?
 - O Do we need alternative hash algorithms as a back up for the future attacks?
 - Can we make hash functions different enough to resist similar attacks?