**School of Computer Science & Software Engineering**

**CITS4419 Mobile and Wireless Computing**

**Sensor Network MAC protocols  
Week 3 Tuesday 14 August 2018**

This lecture introduces the main types of MAC protocols for sensor networks

### Recommended Reading

Bachir, M. Dohler, T. Watteyne, and K. Leung, *MAC Essentials for Wireless Sensor Networks*, Communications Surveys and Tutorials 12(2) 2010

### Questions (to guide your listening and reading)

1. Which tasks of a sensor node consume the most energy?
2. How does using a shared wireless channel in a sensor network affect the options for saving energy?
3. The pure Aloha protocol is very simple, but for some applications it can work very well. What types of sensor network application should use Aloha?
4. Describe (at least one of) the techniques used in S-MAC to save energy.
5. What is a hybrid MAC protocol? What are some advantages and disadvantages of the hybrid approach.
6. “MAC protocols need to trade longevity, reliability, fairness, scalability and latency; throughput is rarely a primary design factor.” [Bachir 2010] Expand on this statement using examples from the protocols you have studied.
7. Consider the following application scenarios. Which MAC protocol would you recommend for each and why?
8. Body sensor network monitoring an athlete’s health status with alarms for any dangerous combinations of readings
9. Environmental monitoring of temperature in a vineyard, hourly readings, 80 nodes over a 10 hectare field
10. University-wide building monitoring network reporting temperature, humidity, motion, light etc.