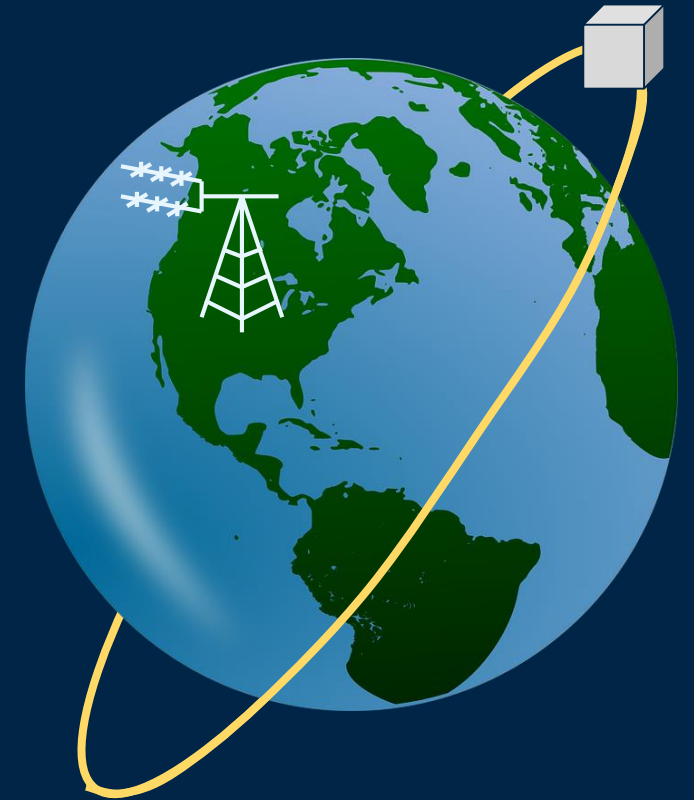


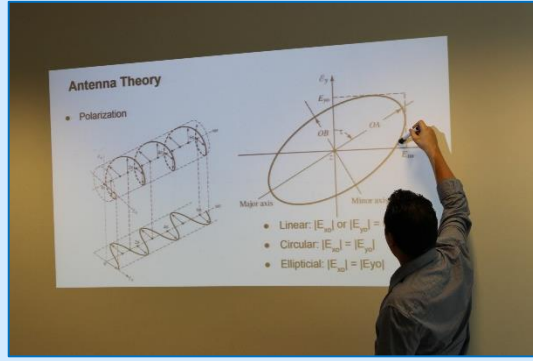
AU GROUND STATION

OUTLINE

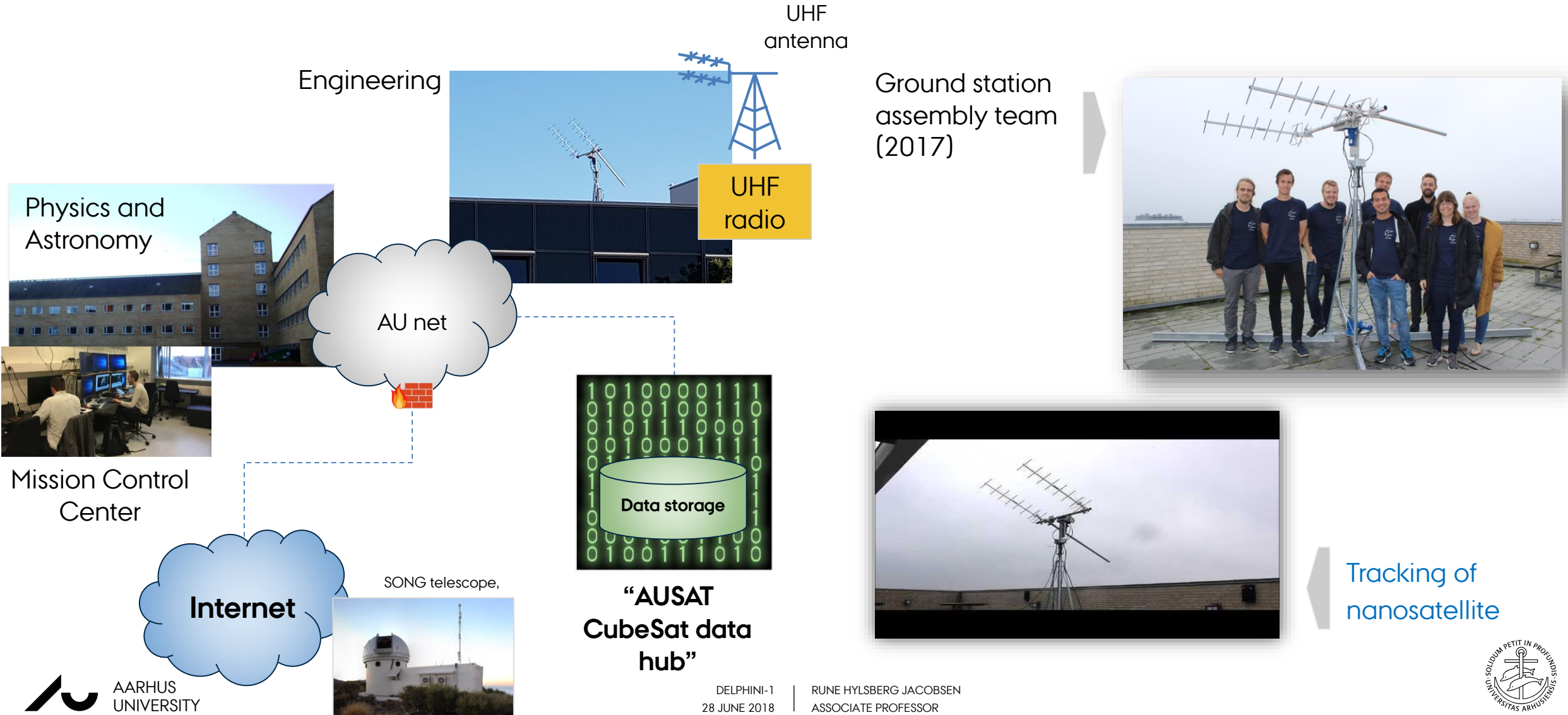
- Ground infrastructure
- Wireless of up-down link
- Satellite tracking



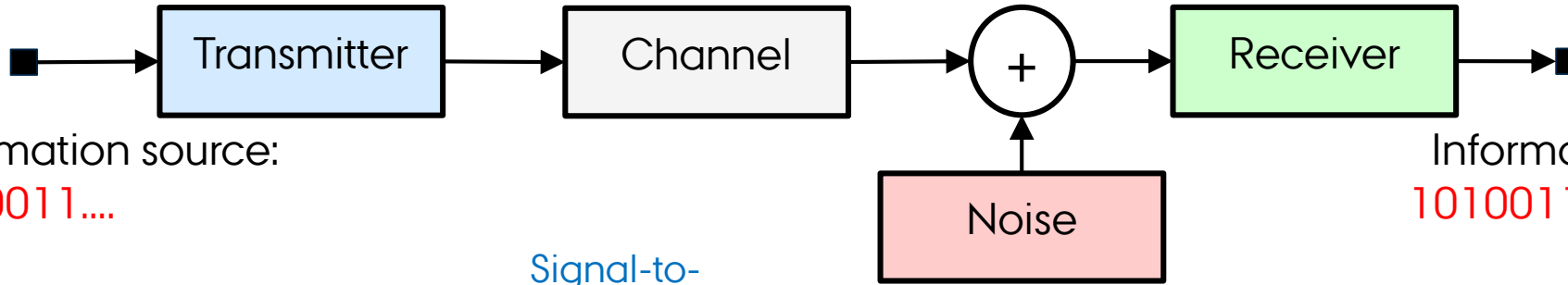
GROUND STATION ASSEMBLY



GROUND INFRASTRUCTURE



THE WIRELESS LINK



Information source:
1010011...

Information sink:
1010011...

$$C = B \log_2 \left(1 + \frac{S}{N} \right)$$

Capacity

Bandwidth

Signal-to-noise ratio

Transmit antenna gain

Receiver antenna gain

$$P_{Rx} = \frac{P_{Tx} G_{Tx} G_{Rx} \lambda^2}{(4\pi d)^2}$$

Receive power

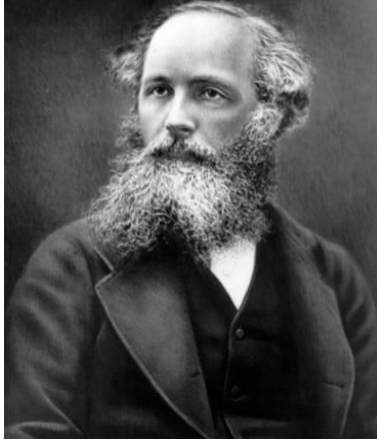
Transmit power

Free space loss

Wireless communications

- Radio channel capacity
- Link budget

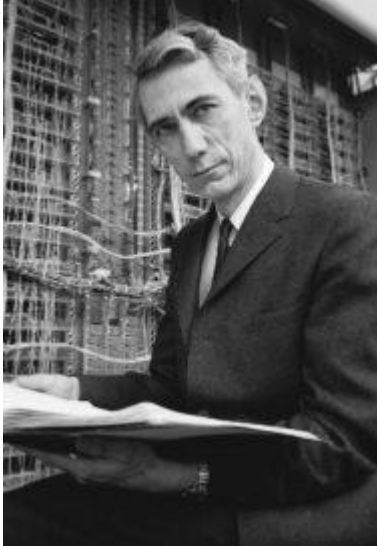
Maxwell



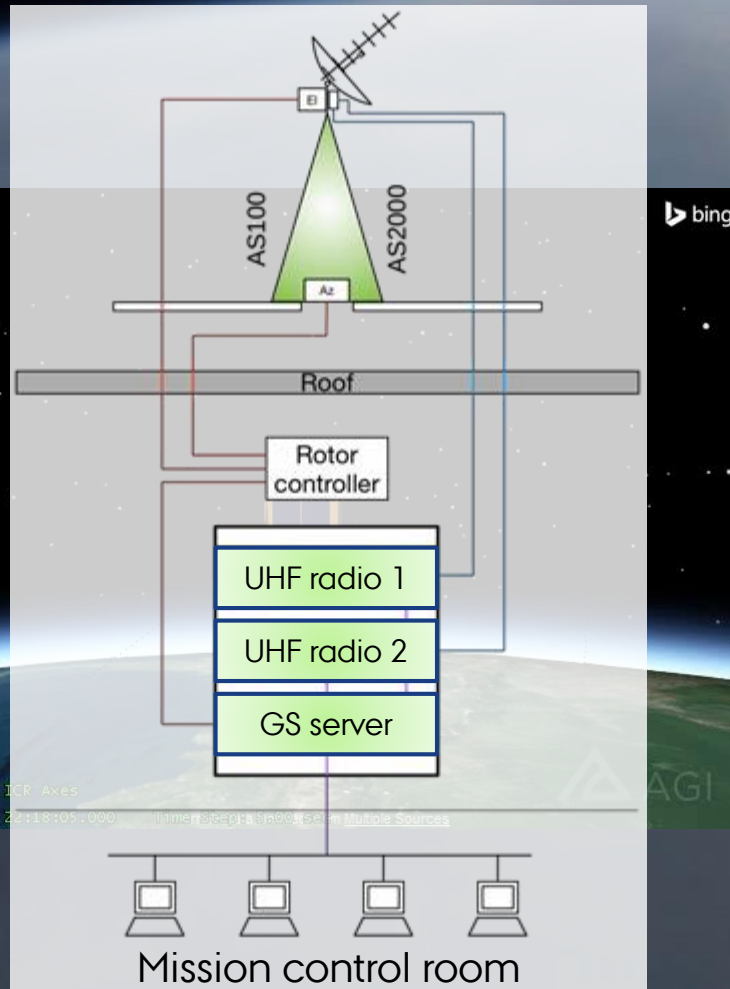
Marconi



Shannon



SATELLITE TRACKING



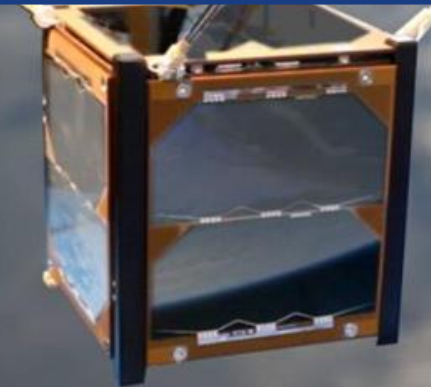
Delphini-1 will be deployed in the ISS orbit

ISS (ZARYA)

1	25544U	98067A	18176.90931574	.00002265	00000-0	41676-4	0	9994
2	25544	51.6401	335.2329	0003676	227.4016	292.6864	15.53968558119878	

Inclination	RAAN	Eccentricity	Argument of perigee	Mean Anomaly	Mean Motion
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Orbital elements



WE WANT TO BUILD A LABORATORY IN SPACE



AARHUS
UNIVERSITY