

CorrPower: a Cross-Correlation Based Algorithm for Triggered and Untriggered GW Burst Searches

Laura Cadonati (MIT), Szabolcs Márka (Columbia)

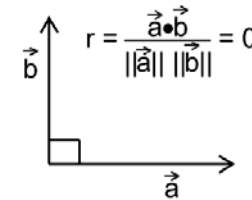
- New search code for bursts of gravitational waves, with three modes of operation:
 - » continuous cross-correlation of data from multiple detectors and generation of event triggers associated with an excess of coherent power (the focus of this poster)
 - » r-statistic test on burst candidate events (ref: *Class. Quantum Grav.* **21** (2004) S1695-S1703)
 - » external trigger search similar to GRB030329 (ref: *Class. Quantum Grav.* **21** (2004) S1831-S1837)
- Unification of coherent techniques implemented in the LIGO triggered and untriggered burst analysis

Strategy:

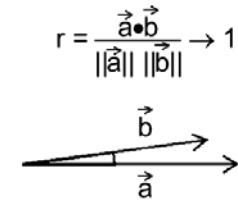
Detect statistically significant excesses of the coherent component of the power in detector pairs.

$$(a+b)^2 = a^2 + b^2 + a \cdot b$$

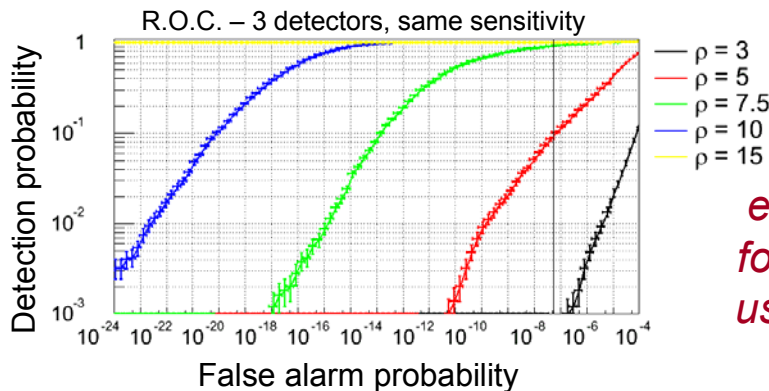
Detector pairs are combined in a global detection statistics.
Search for excesses of detection statistics in *corrgrams*



(a)



(b)



The poster presents:
examples and R.O.C. plots for 1.0 ms gaussian pulses, using white gaussian noise in 2 and 3 detectors

