

# Global Changes in Connectivity due to Attention

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## Motion Object Tracking (MOT) Stimuli

16 Balls  
area = 12° x 12°, 400 x 400 pixels  
v = 25 pixels/s

### Protocol

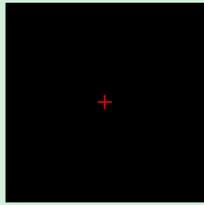
5 min/run  
4 runs/condition  
8 subjects

### fMRI

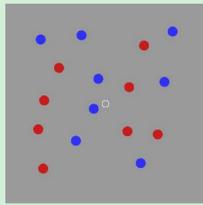
3 T Siemens scanner  
TR = 2s  
voxel = 3 x 3 x 3.6 mm<sup>3</sup>

## Three Steady-State Conditions

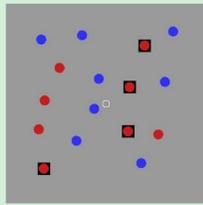
Resting State



Passive Viewing MOT - no targets



Attentive Tracking MOT - 4 targets

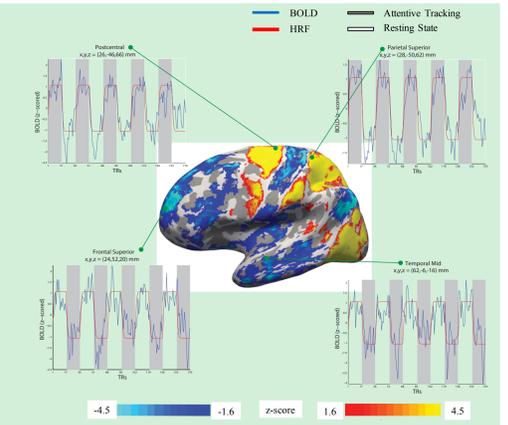
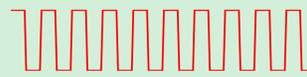
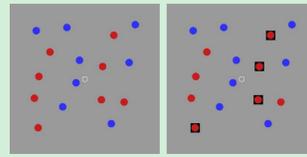


Stimulus Contrast

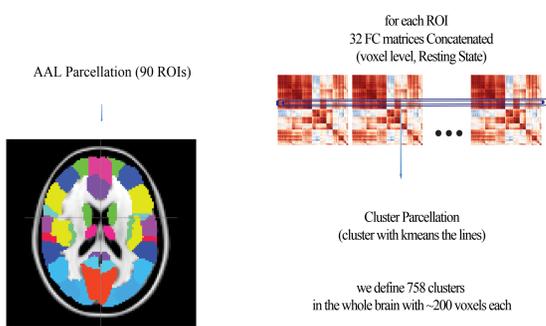
Attention Contrast

## Interleaved Control

10 Trials (30s each)  
alternate Passive - Tracking

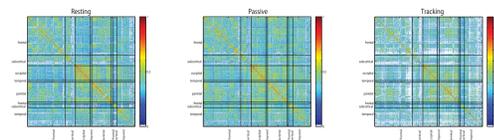


## global Functional Connectivity- cluster level (758 clusters, ~200 voxels per cluster)

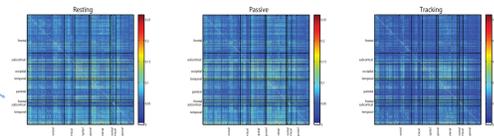


using the Mean Time Series  
among all voxels in a cluster

MEAN FUNCTIONAL CONNECTIVITY (FC) OVER ALL RUNS



MEAN GRANGER CAUSALITY (GC) OVER ALL RUNS

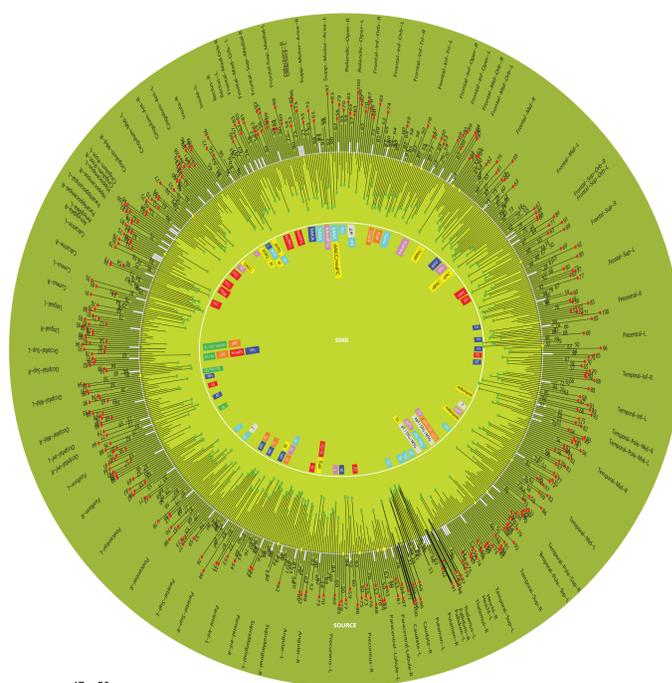


354 380  
22 90 AAL parcels  
756 clusters

Clusters with Increase in FC due to Stimulus

153 179  
8 65 AAL parcels  
340 clusters

Clusters with Decrease in FC due to Stimulus

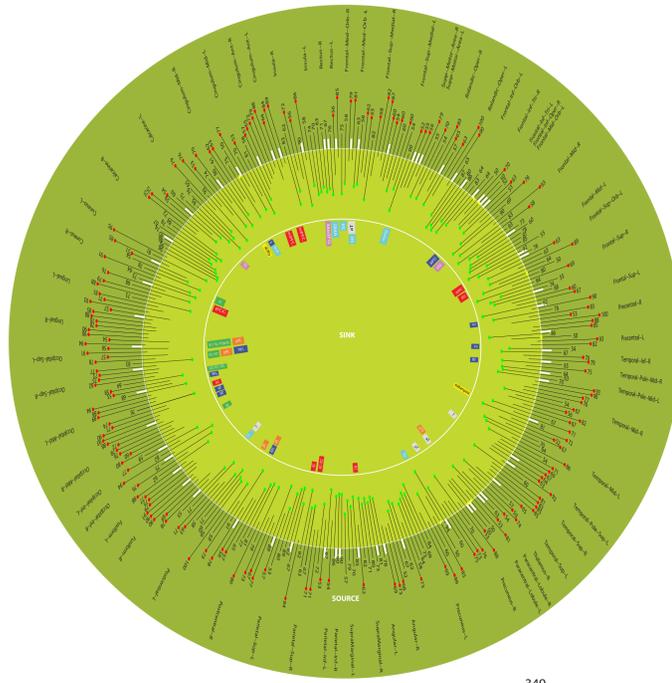
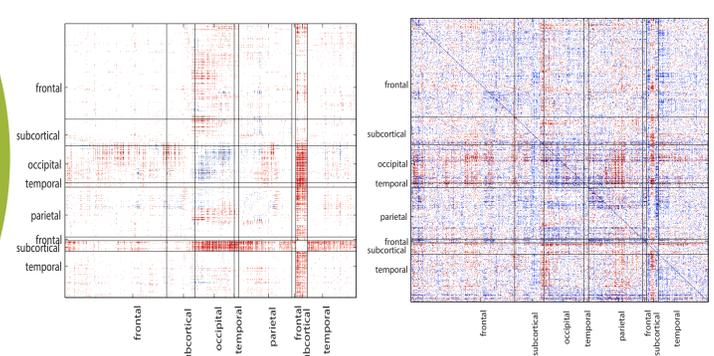


### FC Contrast

### GC Contrast

Stimulus Contrast

Stimulus Contrast



47 50  
7 32 AAL parcels  
104 clusters

Clusters with Increase in FC due to Attention

319 349  
73 90 AAL parcels  
744 clusters

Clusters with Decrease in FC due to Attention

most part of Granger connections  
● TOWARDS the cluster  
● AWAY from the cluster  
● TOWARDS and AWAY from are equal (numbers = %)

### FC Contrast

### GC Contrast

Attention Contrast

Attention Contrast

