onset, but the memory component was elevated in cases independent of age-of -onset (Figure). The memory-related Tau-PET component was associated with PiB-PET (beta=0.59, p<0.001) and NFQ (beta = 0.30, p<0.001). A mediation analysis showed a strong mediation effect by PiB-PET (mediation effect [95% CI] = 0.85 [0.23, 1.41], p<0.001) on the relationship between NFQ and tau-PET (direct effect [95% CI] = 0.30 [-0.01, 0.57], p = 0.08). **Conclusions:** Tau deposits in visual, executive, and memory-related networks which may reflect phenotypic heterogeneity in AD. Consistent with the CNF model of AD, direct examination of tau-PET and functional connectivity in the same subjects demonstrates a strong association of network failure with tau that is largely mediated by beta-amyloid.

## IC-03-05 EEG DIRECTED CONNECTIVITY FROM POSTERIOR BRAIN REGIONS IS DECREASED IN DEMENTIA WITH LEWY BODIES: A COMPARISON WITH ALZHEIMER'S DISEASE AND CONTROLS

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**Background:** Attentional deficits in dementia with Lewy bodies (DLB) could be caused by disruption in directed information flow between the frontal and parietal brain regions involved in attention networks. Therefore, directed connectivity between brain regions might be disrupted in DLB and relate to the clinical syndrome of DLB. To investigate this hypothesis, we analyzed the EEG directed connectivity pattern in DLB and compared that with controls, and patients with Alzheimer's disease (AD). Furthermore, we tested whether potential disturbance in directed connectivity in DLB was correlated with attentional deficits. **Methods:** Resting-state EEG recordings were obtained in DLB and AD patients, and controls (N=66 per group, matched for age and gender). Phase transfer entropy (PTE), a novel phase-based measure for directed connectivity, was used to measure directed connectivity in the groups for the theta, alpha and beta frequency band. TMT test part B (TMT-B) was included as a measure of attention in DLB. **Results:** A posterior-to-anterior PTE gradient, with occipital channels driving the frontal channels, was found in controls in all frequency bands. This posterior-to-anterior gradient was largely lost in DLB in the alpha band (p<.05). In the beta band, posterior brain regions were less driving in information flow in AD patients than in DLB patients and controls. A higher mean PTE gradient in the posterior brain regions in the beta band correlated with better performance on the TMT-B test in DLB patients (N=36, rho=-.37; p=.03). **Conclusions:** The common posterior-to-anterior pattern of directed connectivity in controls is disturbed in DLB patients mainly in the alpha band, and in AD patients mainly in the beta band. Disrupted alpha band directed connectivity may underlie the pathophysiology of DLB and differentiate between DLB and AD. Impaired directed connectivity between frontal and parietal brain areas in the beta band might be the underlying pathophysiological mechanism of attentional deficits in DLB. Future studies with neuroimaging tools with higher temporal and spatial resolution such as magnetoencephalography are needed to explore the specific pathophysiological role of directed connectivity in the beta band, and in various anatomical regions in DLB.

## SATURDAY, JULY 23, 2016
## ALZHEIMER'S IMAGING CONSORTIUM (AIC)
## ICI-01
## WHAT HAVE WE LEARNED?

### ICI-01-01 WHAT HAVE WE LEARNED?

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Abstract not available.

## SATURDAY, JULY 23, 2016
## ALZHEIMER'S IMAGING CONSORTIUM (AIC)
## ICI-02
## ALZHEIMER'S DISEASE IMAGING BIOMARKERS AND AGING

### ICI-02-01 ALZHEIMER'S DISEASE IMAGING BIOMARKERS AND AGING

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Abstract not available.

## SATURDAY, JULY 23, 2016
## ALZHEIMER'S IMAGING CONSORTIUM (AIC)
## ICI-03
## CONTROVERSY DEBATE: ALZHEIMER'S DISEASE — SINGLE VERSUS MULTIPLE BRAIN NETWORK DISORDER

### ICI-03-01 CONTROVERSY DEBATE: SINGLE BRAIN NETWORK DISORDER

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**Background:** In Alzheimer's disease, both rise and propagation of neurodegenerative changes are linked with macroscopic brain networks. The default mode network, which comprises midline structures of temporal, parietal, and prefrontal lobes, is of special interest, as suggested as the primary target of AD. **Methods:** Review of previous findings from human multi-modal imaging and animal research. **Results:** Brain changes of several dimensions and modalities, partly interrelated, affect primarly the default mode network. **Conclusions:** The talk presents and discusses main findings and problems for the view that AD is a default mode network disorder.

### ICI-03-02 CONTROVERSY DEBATE: MULTIPLE BRAIN NETWORK DISORDER

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Abstract not available.