

## Alpha waves organize a to-do list for the brain

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In his search to understand the role and function of <u>brain</u> waves, neuroscientist Ole Jensen (Radboud University) postulates a new <u>theory</u> on how the alpha wave controls attention to visual signals. His theory is published in *Trends in Neurosciences* on May 20. Alpha waves appear to be even more active and important than Jensen already thought.

Our brain cells 'spark' all the time. From this electronic activity brain waves emerge: oscillations at different band widths. And like a radio station uses different frequencies to carry specific information far away from the emitting source, so does the brain. And just like radio listeners with a certain musical preference tune in to the frequency that carries the music they prefer, brain area's tune into the wave length relevant for their functioning.

## Alpha waves aren't boring

Ole Jensen, professor of Neuronal Oscillations at Radboud University's Donders Institute for Brain, Cognition and Behaviour, tries to figure out how this network of sending and receiving information through oscillations works in detail. Earlier he discovered a novel role of the alpha wave that was long thought to be a boring wave, emerging when the brain runs idle and a person is dozing off. Jensen shifted this interpretation by showing the importance of the alpha frequency: it helps to shut down irrelevant brain area's for a certain task. It helps us concentrate on what is really important at that moment.

## To do list

In the Trends in Neurosciences paper that appeared today, Jensen postulates a new theory for how this actually works given a visual task.



'We think that different phases of the alpha wave encode for different parts of a visual scene. It helps breaking down the visual information into small jobs and then perform those tasks in a specific order. A to do list for your visual attention system: focus on the face, focus on the hand, focus on the glass, look around. And then all over again.'

Jensen is now planning to test this new interpretation of the alpha wave in both animals and humans.

**More information:** Ole Jensen, Bart Gips, Til Ole Bergmann, Mathilde Bonnefond, "Temporal coding organized by coupled alpha and gamma oscillations prioritize visual processing," *Trends in Neurosciences*, Available online 14 May 2014, ISSN 0166-2236, <u>dx.doi.org/10.1016/j.tins.2014.04.001</u>.

Provided by Radboud University Nijmegen

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