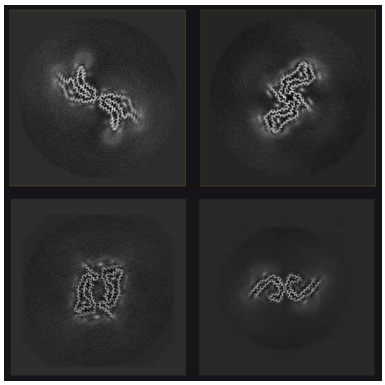
ASRC - City College of New York

Seminar in Biochemistry, Biophysics & Biodesign



THE SEMINAR WILL BE GIVEN VIA ZOOM:
Click here for Zoom link

THE ZOOM BROADCAST MAY ALSO BE VIEWED IN THE ASRC AUDITORIUM:

- *Current CUNY Cleared4 Pass required for entrance*
- *Masks are required*
- *Maximum occupancy: 30*

HOST:
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ADVANCED SCIENCE RESEARCH CENTER
THE GRADUATE CENTER
CITY UNIVERSITY OF NEW YORK

CUNY The City University of New York

Wednesday, February 9, 2022

12:00 – 1:00 PM

Sjors Scheres

Research Leader, Structural Studies Division
MRC Laboratory of Molecular Biology, Cambridge, UK

Cryo-EM structures of amyloids from human brain

ABSTRACT The assembly of microtubule-associated protein tau into abundant amyloid inclusions underlies many neurodegenerative diseases called tauopathies. Tau inclusions display distinct neuroanatomical and cellular distributions between different tauopathies. Morphological and biochemical differences suggest that amyloid filaments of the tau protein adopt disease-specific molecular conformations. Molecular conformers of filamentous tau may give rise to different neuropathological phenotypes, similar to prion strains, but the underlying structures were not known. Using electron cryo-microscopy (cryo-EM), we determined the structures of tau filaments that were extracted from the brains of individuals with many different tauopathies, including Alzheimer's disease, chronic traumatic encephalopathy (CTE) and progressive supranuclear palsy (PSP). I will give an introduction to the basics of cryo-EM structure determination and explain how our structures have revealed unexpected differences between the tau filaments from the different diseases, and how these structures provide exciting avenues to unravel the mechanisms of amyloid formation in neurodegeneration.