



Contribution ID: 671

Type: Oral Presentation

## Simulation of blood flow in a whole mouse brain vasculature

*Monday, 31 May 2021 15:55 (15 minutes)*

Quantification of the full brain structural vasculature and physiological response is advantageous for improved understanding of cerebrovascular disease progression affecting the brain. In this respect, characterization of the whole brain angioarchitecture across multiple resolution scales from arteries and veins down to capillaries enables simulation of whole brain blood flow. In the current work we are pioneering a blood flow simulator for a complete in silico mouse brain model previously segmented for vasculature. We report structural and functional parameters of the mouse brain angioarchitecture that to date have not been reported elsewhere.

### Time Block Preference

Time Block A (09:00-12:00 CET)

### References

Erlend Hodneland, Erik A. Hanson, Ove Sævareid, Geir Nævdal, Arvid Lundervold, Veronika Solteszova, Antonella Z. Munthe-Kaas, Andreas Deistung, Jurgen R. Reichenbach, Jan M. Nordbotten. "A new framework for assessing subject-specific whole brain circulation and perfusion using MRI-based measurements and a multi-scale continuous flow model". PLOS Computational Biology (2019); 15(6):e1007073.

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**Session Classification:** MS20

**Track Classification:** (MS20) Biophysics of living porous media: theory, experiment, modeling and characterization