

Dr. F.C. MacIntosh Lectureship Seminar**GUEST SPEAKER****Dr. Frédéric Lesage**

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Polytechnique Montréal, and
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Centre



 **FRIDAY, NOVEMBER 24, 2023**
11:00AM

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“Capillary stalling and hypoxic micropockets: two sides of the same phenomenon?”

The human brain consumes 40% of the body's oxygen and is perfused by a vascular plumbing system consisting of large and smaller pipes that both change shape and are subject to collective network reorganization with disease and aging. The smallest vascular structure, the capillary, is a central site of oxygen exchange, an exchange essential for normal functioning of the brain. Recent evidence points to capillaries, and their properties as key to understand in this context. Using non-linear microscopy and exploiting novel oxygen sensitive nanoprobe, my group uncovered microvascular changes with increasing age: increased capillary flow heterogeneity/disorganization leading to sparse local micropockets of hypoxic tissue in the brain where neurons potentially die. Underlining the mechanistic importance of these changes is that they were also observed in atherosclerosis and Alzheimer's disease (AD). These observations will be described and put into the context of the recently observed capillary stalling phenomenon.