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> Abstract for an Invited Paper for the MAS20 Meeting of the American Physical Society

## **Fundamental physics of flow-mediated membrane protein transport.** AURELIA HONERKAMP-SMITH, Lehigh Univ

A remarkable feature of lipid membranes is their fluidity, which allows them to self-heal, bend, and flow. Membranes circulate in response to flows in the water surrounding them, but cell membranes are reinforced by a cytoskeletal network of protein filaments which modifies their fluid properties, making their behavior complex and challenging to predict. Cell flow responses regulate diverse processes such as blood pressure, bone density, and neural growth. However, we lack information on the lateral movement of extracellular membrane proteins located at the cell-fluid interface. We use model membranes, microfluidics and microscopy to investigate how fundamental properties of supported membranes change when flow is applied to them.