



Canadian Association  
of Physicists

Association canadienne  
des physiciens et physiciennes

Contribution ID: 3223 Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

## **(G\*) Measuring elastocapillary dissipation in droplets moving along soft elastomer films**

*Wednesday, 8 June 2022 15:30 (15 minutes)*

When a droplet interacts with a soft surface, it can deform the material it contacts. This property leads to a plethora of unique physical phenomena with applications in fields ranging from water collection to surface sensing. We explore droplet dynamics on soft materials using a micropipette-based technique to simultaneously image, and measure the forces on, a microscopic droplet dragged along the surface of a soft elastomeric polydimethylsiloxane (PDMS) film. By changing the thickness of the elastomer film, we can control the compliance of the substrate independent of surface chemistry. We are also able to control and measure the presence of uncrosslinked PDMS chains in our system. We model the dynamics of the droplet-substrate interaction and expect dissipation to scale with the size of the capillary deformation. We find agreement between our model and experimental results.

**Primary authors:** KHATTAK, Hamza; DALNOKI-VERESS, Kari (McMaster University)

**Presenter:** KHATTAK, Hamza

**Session Classification:** W3-8 Soft Condensed Matter II (DCMMP) | Matière condensée molle II (DPMCM)

**Track Classification:** Technical Sessions / Sessions techniques: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)