Canadian Association of Physicists

Association canadienne des physiciens et physiciennes

Contribution ID: **524** Type: **Oral Competition (Graduate Student) / Compétition orale (Étudiant(e) du 2e ou 3e cycle)**

# (G*) Thermodynamics of Exotic Gauss-Bonnet Black Holes

*Monday 7 June 2021 16:06 (3 minutes)*

We examine the thermodynamics of a new class of asymptotically AdS black holes with non-constant curvature event horizons in Gauss-Bonnet Lovelock gravity, with the cosmological constant acting as thermodynamic pressure. We find that non-trivial curvature on the horizon can significantly affect their thermodynamic behaviour. We observe novel triple points in 6 dimensions between large and small uncharged black holes and thermal AdS. For charged black holes we find a continuous set of triple points whose range depends on the parameters in the horizon geometry. We also find new generalizations of massless and negative mass solutions previously observed in Einstein gravity.

**Author:** HULL, Brayden (University of Waterloo)

**Co-author:** MANN, Robert (University of Waterloo)

**Presenter:** HULL, Brayden (University of Waterloo)

**Session Classification:** M3-4 Black Holes (DTP) / Trous noirs (DPT)

**Track Classification:** Theoretical Physics / Physique théorique (DTP-DPT)