

**Invited Talk - Thermodynamics of black holes:
corrections to the first law and the Hawking
spectrum - Ayan Chatterjee, Central University of
Himachal Pradesh, Dadroli**

Saturday 23 August 2025 09:30 (1 hour)

The thermodynamic properties of black holes are known to receive corrections due to higher curvature corrections to the action. In particular, the first and the second laws of black hole mechanics are modified due to such terms. In the context of Isolated horizons, the equilibrium version of the first law of black hole mechanics for Lovelock gravity had remained unexplored. We derive the corrections to the zeroth and the first law of black hole mechanics for black holes in these theories. Furthermore, we shall show that if black holes are placed in a thermal bath, even the Hawking spectrum gets corrected. The exact expressions for thermal corrections to the Schwarzschild and the Kerr black holes shall be obtained.

Session Chair : Sanved Kolekar