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A. Mohapatra: Physical conditions in high- z C III absorbers: origin and stability

Monday, 3 June 2019 18:30 (10 minutes)

In this talk, I will present detailed photoionization models of well-aligned optically thin doubly ionized carbon (C III) absorption components at $2.1 \leq z \leq 3.4$. Our inferred density and overdensity (Δ) favor the absorption originating from gas associated with circumgalactic medium and probably not in hydrostatic equilibrium. We discuss statistically significant redshift evolution of our derived parameters. We show L vs. $[C/H]$ can be well reproduced if L is governed by the product of gas cooling time and sound crossing speed as expected in the case of cloud formation under thermal instabilities. As noted in the literature survivability of such cloud over longer time-scale is an issue. Therefore, studying the optically thin C III absorbers over a large z range and probably correlating their z evolution with global star formation rate density evolution can shed light to the physics of circumgalactic medium formation and evolution.

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Session Classification: Students' presentations