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# Lyman radiation hydrodynamics in turbulent star-forming gas clouds in galaxies

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## Abstract

Understanding the origin of escape fraction of both Lyman continuum (LyC) and Lyman alpha photons is central for our understanding of reionisation. Recent deep Hubble imaging campaigns have revealed the presence of high LyC leakage from Lyman alpha emitting galaxies – likely analogues of reionisation-era galaxies. However some other population with seemingly similar Lyman alpha properties show no detectable LyC leakage.

We study the mechanism of LyC and Lyman alpha escape fraction through turbulent gas clouds. We perform a suite of controlled numerical experiments of the propagation of ionisation fronts through driven turbulence medium, mimicking a patch of molecular clouds, in a full radiation hydrodynamical framework with RAMSES-RT. This enable us to investigate small-scale physics often unresolved in a cosmological simulation, thus complementing the current large-scale effort such as SPHINX. We present our progress in this direction.

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