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Title:	Study of galaxies on large-scale filaments in simulations
Authors:	Singh, Ankit (/jspui/browse?type=author&value=Singh%2C+Ankit) Mahajan, Smriti (/jspui/browse?type=author&value=Mahajan%2C+Smriti) Bagla, J.S. (/jspui/browse?type=author&value=Bagla%2C+J.S.)
Keywords:	Galaxies: clusters: general Galaxies: evolution Galaxies: fundamental parameters Galaxies: star formation
Issue Date:	2020
Publisher:	Oxford University Press
Citation:	Monthly Notices of the Royal Astronomical Society, 497(2), pp.2265-2275.
Abstract:	We use data from the Evolution and Assembly of GaLaxies in their Environment (EAGLE) cosmological simulation to study properties of galaxies in the cosmic web. Galaxies become more redder and form stars at a lower rate relative to their counterparts further away from the cylindrical axis of the large-scale filaments. These trends are particularly strong for galaxies with $M^*/M_0 < 10^{10}$. We also find that at distances $< 0.5\text{Mpc}$ from the spine of the filaments, the median gas and stellar mass fraction in filament galaxies rises sharply with decreasing distance from the spine of the filament. These results, together with matching trends in the SFR/M^* and the $g-r$ colour of filament galaxies suggest that (i) the intrafilamentary gas condenses into the filament galaxies thus fuelling star formation in them, and (ii) increased number density of galaxies closer to the central axis of the filament enhances the rate of gravitational interactions among filament galaxies closer to the spine.
URI:	https://academic.oup.com/mnras/article/497/2/2265/5875917 (https://academic.oup.com/mnras/article/497/2/2265/5875917) http://hdl.handle.net/123456789/3390 (http://hdl.handle.net/123456789/3390)
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