Title:	Age and metallicity of galaxies in different environments of the Coma supercluster
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Abstract:	We analyse luminosity-weighted ages and metallicity (Z) of galaxies in a continuous range of environments, i.e. clusters, filaments and voids prevalent in the Coma supercluster (Mpc). Specifically, we employ two absorption line indices, Hβ and ⟨Fe⟩ as tracers of age and metallicity of galaxies. We find that the stellar-phase metallicity of galaxies declines with increasing age as a function of stellar mass (M*) as well as environment. On the filaments, metallicity of galaxies varies as a function of their distance from the spine of the filament, such that galaxies closer to the centre of the filaments have lower metallicity relative to their counterparts 1 Mpc away from it. The mean age of intermediate mass galaxies (1010 < M*/M⊙ < 1010.5) galaxies is statistically significantly different in different environments such that, the galaxies in clusters are older than the filament galaxies by 1-1.5 Gyr, while their counterparts in the voids are younger than filament galaxies by ~ 1 Gyr. The massive galaxies (M*/M⊙ > 1010.5), on the other hand show no such difference for the galaxies in clusters and filaments, but their counterparts in voids are found to be younger by ~ 0.5 Gyr. At fixed age however, Z of galaxies is independent of their M* in all environments, except the most massive (M*/M⊙ ≳ 1010.7), oldest galaxies (≳ 9 Gyr) which show a sharp decline in their Z with M*. Our results support a scenario where galaxies in the nearby Universe have grown by accreting smaller galaxies or primordial gas from the large-scale cosmic web.
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