We are grateful for the editor's comments and have amended title and abstract accordingly; the new title now reads "**Experimental observation of** the impact of nanostructure on hygroscopicity and reactivity of fatty acid atmospheric aerosol proxies" and the new abstract now reads "Atmospheric aerosol hygroscopicity and reactivity play key roles in determining an aerosol's fate and are strongly affected by its composition and physical properties. Fatty acids are surfactants commonly found in organic aerosol emissions. They form a wide range of different nanostructures dependent on water content and mixture composition. In this study we follow nano-structural changes in mixtures frequently found in urban organic aerosol emissions, i.e. oleic acid, sodium oleate and fructose, during humidity change and exposure to the atmospheric oxidant ozone. Addition of fructose altered the nanostructure by inducing molecular arrangements with increased surfactant-water interface curvature. Small-Angle X-ray Scattering (SAXS) was employed for the first time to derive the hygroscopicity of each nanostructure**, thus addressing a current gap in knowledge** by measuring time- and humidity-resolved changes in nano-structural parameters. We found that hygroscopicity is directly linked to the specific nanostructure and is dependent on the nanostructure geometry. Reaction with ozone revealed a clear nanostructure-reactivity trend, with notable differences between the individual nanostructures investigated. Simultaneous Raman microscopy complementing the SAXS studies revealed the persistence of oleic acid even after extensive oxidation. Our findings demonstrate that self-assembly of fatty acid nanostructures can significantly impact two key atmospheric aerosol processes: water uptake and chemical reactivity, thus directly affecting the atmospheric lifetime of these materials. This could have significant impacts on both urban air quality (e.g. protecting harmful urban emissions from atmospheric degradation and therefore enabling their long-range transport), and climate (e.g. affecting cloud formation), with implications for human health and wellbeing."

We also checked Fig. 4 with a Color Blindness Simulator and could not detect any issues (it was created with the default python (matplotlib) colour scheme which is designed to accommodate colourblind people).