As the Universe ages, quiescent (not star-forming) galaxies grow more rapidly in size than stellar mass. The two leading explanations for this size growth are minor mergers (see second result for more info) and the addition of recently quenched galaxies to the quiescent population. Star-forming galaxies have larger sizes on average compared to quiescent galaxies. When they stop forming stars and quench, they join the quiescent population of galaxies at the large size end of the distribution. Therefore, recently quenched galaxies should have larger sizes than quiescent galaxies on average. Over time, the addition of recently quenched galaxies to the quiescent population should therefore induce an increase in the average size of quiescent galaxies.

In Matharu et al., (2020), we found direct evidence for this process by studying the position of 23 spectroscopically identified recently quenched cluster galaxies on the mass—size plane (green markers in the plot to the right). Recently quenched cluster galaxies follow a mass—size relation lying midway between the star-forming and quiescent field mass—size relations (dotted line in the plot). This result confirmed that the average size of quiescent galaxies does increase due to the quenching of star-forming galaxies as well as minor mergers (see second result for more info). Go to the website below to find out more about this work.

