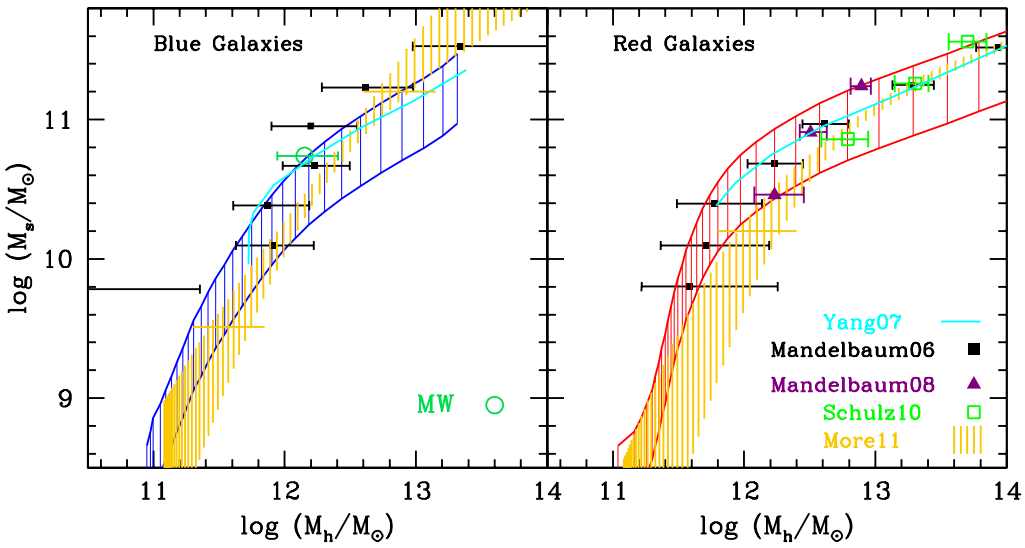


Fig. 8. Comparison with other observational inferences. Left panel: $M_{\rm s} - M_{\rm h}$ relation for blue (late-type) galaxies. The blue curves connected by vertical lines encompass the $\pm 1\sigma$ interval inferred here. We also reproduce the inferences using galaxy-galaxy weak lensing by Mandelbaum et al. (2006, black squares), galaxy groups (Yang et al. 2007, cyan solid line), and satellite kinematics (More et al. 2011, orange vertical lines). Estimates for the Milky Way are plotted (open circle with error bar). Right panel: $M_{\rm s} - M_{\rm h}$ relation for red (early-type) galaxies. The red curves connected by vertical lines encompass the $\pm 1\sigma$ interval inferred here. Other determinations as in the left panel but for early-type galaxies are plotted. More recent inferences with the weak lensing technique by Mandelbaum et al. (2008, filled violet triangles) and by Schulz et al. (2010, open green squares) are also plotted. The color figure can be viewed online.

shallower, this relation becomes steeper (higher stellar mass at a fixed halo mass) for the latter case with respect to the former one.

In Figure 8, the results from Mandelbaum et al. (2006) are reproduced, left panel for central late-type galaxies and right panel for central early-type galaxies (solid squares with error bars). The error bars are 95 percent confidence intervals (statistical). Mandelbaum et al. (2006) have used the (de Vaucouleours/exponential) bulge-to-total ratio, frac_deV, given in the SDSS PHOTO pipeline as a criterion for late- (frac_deV$<0.5$) and early-type (frac_dV$\geq 0.5$) separation. This criterion of course is not the same as the color used in YMB09, but there is a correlation between both of them in such a way that a comparison between our results and those of Mandelbaum et al. (2006) is qualitatively possible. Note that we have decreased the halo masses of Mandelbaum et al. (2006) by $\approx$15% on going from their to our definition of halo virial mass. In more recent works, Mandelbaum, Seljak, & Hirata (2008) and Schulz, Mandelbaum, & Padmanabhan (2010) reported a new weak lensing analysis for the massive central early-type galaxies using the seventh SDSS data release (DR7) and a more sophisticated criteria for selecting the early-type lens population. Their results are plotted in the right panel of Figure 8 with solid triangles and open squares, respectively.

In the case of the satellite kinematics determinations of $M_{\rm h}$ by More et al. (2011), the same SDSS sample and similar recipes as in YMB09 for calculating $M_{\rm s}$, classifying galaxies into blue and red, and finding central and satellites galaxies were used. More et al. (2011) applied their analysis to constrain the mean $\log M_{\rm h}$ as a function of $M_{\rm s}$, but also presented the constraints of their model for the mean of $\log M_{\rm s}$ as a function of $M_{\rm h}$. Their results for the latter case, kindly made available to us in electronic form by Dr. S. More, are reproduced in Figure 8 as the shaded (orange) regions which represent the 68% confidence intervals. On going from their to our definitions of halo mass and IMF, their $M_{\rm h}$ and $M_{\rm s}$ were decreased by $\approx$15% and $\approx$25%, respectively. The dotted horizontal lines in each panel show the approximate range in $M_{\rm s}$ where the determinations are reliable according to More et al. (2011, see their Figure 11).

In More et al. (2011) are also reported results for the average $M_{\rm h}$ as a function of $M_{\rm s}$ split into central blue and red galaxies corresponding to the galaxy group analysis by Yang et al. (2007). The solid (cyan) curves in Figure 8 reproduce these results.