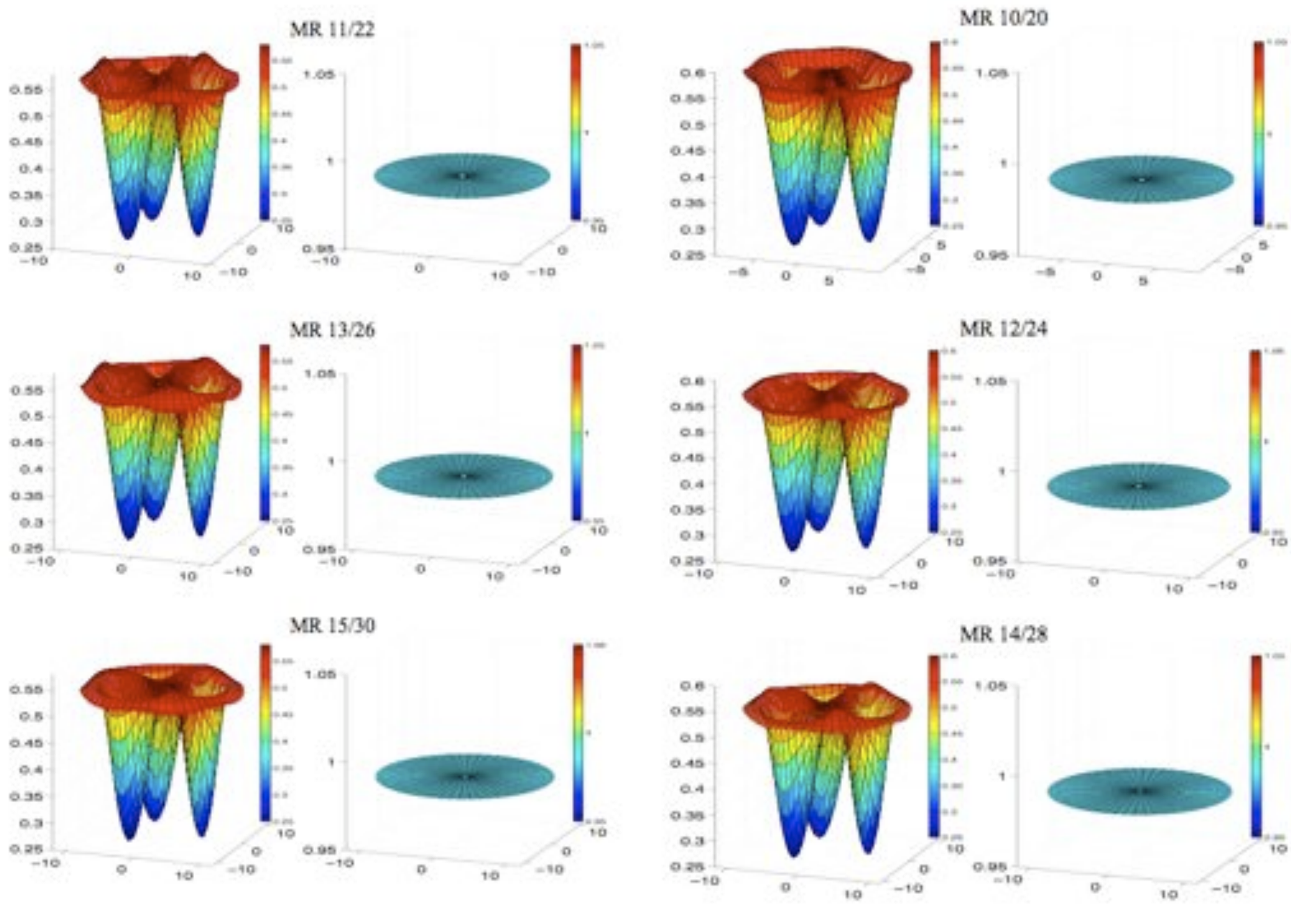

FIG. 9: (Color online) Plots of $\mathrm{Tr}\hat{F}(P)$ for different system sizes (each panel is marked with the corresponding N/N_ϕ). For each size, we show $\mathrm{Tr}\hat{F}(P)$ calculated with the standard metric tensor (left) and with the quantum metric tensor (right).

VI. QUANTUM GEOMETRY FOR ONE FLUX ADDED.

In this case we have 2 anyons and the zero modes space is 1-dimensional. We keep one anyon fixed and move the other along different braiding paths. The monodromy of any path Γ can be computed by integrating the curvature:

$$\hat{W}_\Gamma = e^{i\int_{S_\Gamma} dF}, \tag{47}$$

where S_Γ is the surface enclosed by Γ. Thus, if we map the curvature, we can easily compute the monodromy of any arbitrary path.

We compute the coefficient F of the curvature form (see Eq. 39) at a point P of the sphere from:

$$F(P) = \lim_{S_\Gamma \to 0} \frac{\hat{W}_\Gamma - 1}{iS_\Gamma}, \tag{48}$$

where Γ is a small path around P. The monodromy is computed as explained in the previous section and we obtain the limit by considering paths of decreasing radius. The value of F computed this way coincides with the coefficient of the curvature in the local coordinate system (w_1, w_2) introduced in the previous section. The monodromy Eq. 48, however, is independent of the coordinates used to compute the curvature form.

The upper panels in Fig. 7 plot $F(P)$ as a function of the distance from P to the position of the fixed anyon. The two upper panels refer to odd and even numbers of electrons. The lower two panels show the sum and the difference between the results for odd and even number of electrons. Since one is interested in the thermodynamic limit, we plot sequences of curves for an increasing number of electrons. By comparing the curves for these sequences, one can determine how fast is the thermodynamic limit achieved.

As one can clearly see, the curves in the top panels of Fig. 7 go asymptotically with the distance towards a constant value, which is precisely equal to the quasi-hole charge $e^*{=}e/4$ (when working on the sphere, there is a small correction to this value, correction that goes to zero as the size of the sphere is increased). The most remarkable thing about Fig. 7 is that the curvatures for odd/even number of electrons have different thermodynamic limits, as one can clearly see by inspecting the dif-