Changes to the manuscript:

Section	Paragraph	Old	New
Abstract	-	“2.76(s)ms”	“few ms, limited by technology”
Abstract	-	“exceeding 99% per imaging and rearrangement cycle”	“of 0.997(2) per rearrangement cycle”
1	1		Added references to [11-12] for thousands of atoms and [13] for continuous operating tweezer machines.
1	3	“mean time”	“meantime”
1	4		Added references to [20-22] for small-scale simulations followed by SLM rearrangement from Ahn group.
1	5	“2.76(s)ms”	“2.736(6)ms”
1	6	“survival rates of over 99% per tweezer per image and rearrangement cycle”	“success probabilities of 0.997(2) per tweezer per rearrangement cycle”
2	1	-	Added reference [24] for more details on experimental Setup
2	1	“HSP1K-488-850-PC8”	“UHSP1K-488-850-PC8”
2	1	-	Added reference to Appendix A for experimental details
2	1	“imaging survival above 99%”	“99% imaging survival”
2	Fig. 2	-	Added: “Corrected for the image survival, this corresponds to a rearrangement success of 0.998+0.002 −0.006 per atom”.
2	2	-	Added: “The detection probability is mainly limited by the survival rate of the atoms during the first image. Correcting for this survival, we obtain a success probability of 0.998+0.002 −0.006 per atom for the rearrangement, see Appendix B.”
2	3	“This corresponds to a success rate of 0.991 per rearrangement and imaging cycle per atom, which makes our method suitable for adjusting geometries on the same atomic sample.”	“Assuming the same success probability for each rearrangement and correcting for losses induced by imaging in the different geometries, this results in a re-

			arrangement success of 0.997(2) per atom per cycle.”
3	4	0.31L	“mL”, and “with m=0.41”
4	Fig. 6		Data of the image has changed (see response to referee 1)
4	Fig. 6	“Scaling of the”	“Independence of the”
4	3	“increasing”	“varying”
4	3	-	Added: “The measurement was repeated twice in ascending order, and twice in descending order”
4	3	“2.76(2) ms”	“2.736(6) ms”
4	3	-	Added: “We note that the measured timing may vary with different hardware.”
4	4	“non-scaling”	“nearly constant”
4	4	“0.794(13) ms”	“0.821(6) ms”
4	4	“1.86(3) ms”	“1.772(15) ms”
4	6	“the number of tweez-ers was limited to 36 by the available 813-nm laser power. For such a low tweezer number, a single rearrangement cycle proved to be sufficient to achieve defect-free final geometries. For much larger arrays however, it will be necessary to include multiple rearrangement cycles. Simulations in reference [28] show that success probabilities per tweezer similar to the ones reported here are sufficient to assemble arrays of many thousands of atoms.”	“the number of tweez-ers was limited to 36 by the available 813-nm laser power. For such a low tweezer number, a single rearrangement cycle proved to be sufficient to detect defect-free final geometries in 82.5 % of the realizations. For much larger arrays however, this will not be the case. For ex-ample, using the measured rearrangement success probability of p=0.997, the probability of successfully rearranging Ntw = 1000 atoms in tweezers is around 5 %. In the other 95 % of the cases, only a few atoms (≤ 10) are expected to be lost, and a second rearrangement cycle to fill the gaps can drastically increase the success rate. Simulations in reference [34] show that, for square geometries, more rearrangement cycles are beneficial when the losses from

			imaging and rearrangement are below 1/pNtw. For the values reported in this work, this is true for array sizes of up to thousands of tweezers. We note that such large arrays with sufficient trap depth on our current apparatus would require more than 100 W of 813-nm laser power, which is unrealistic. For other tweezer machines with fewer optical losses and a more favorable polarizability of the atomic species, thousands of tweezers can be obtained, and our technique could be employed [8, 10]."
5	3	"ramping off"	"extinguishing"
6	-	"2.76(2)ms"	"2.736(6)ms"
6	-	"Together with the high survival probability of more than 99 % per tweezer per image and rearrangement"	"When correcting for losses due to imaging survival, the rearrangement success probability per atom was found to be 0.997(2). Combined with sufficiently high imaging survival"
Appendix A		-	Added appendix on the experimental details.
Appendix B		-	Added appendix on the data analysis and fidelities. Included new references to [43] and [44].